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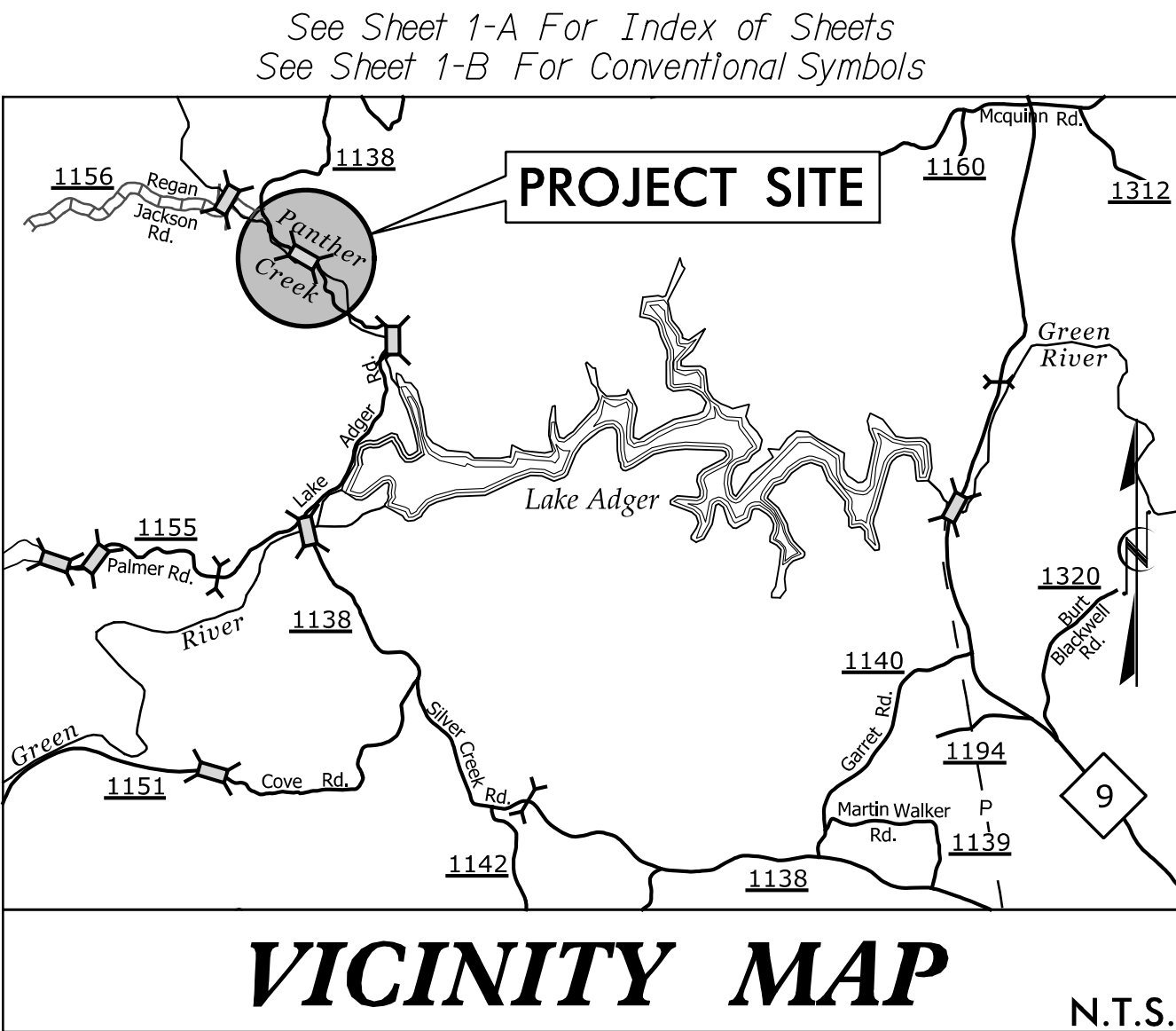
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09/08/2019

PROJECT: B-6020

CONTRACT: DN00282



FINAL PLANS

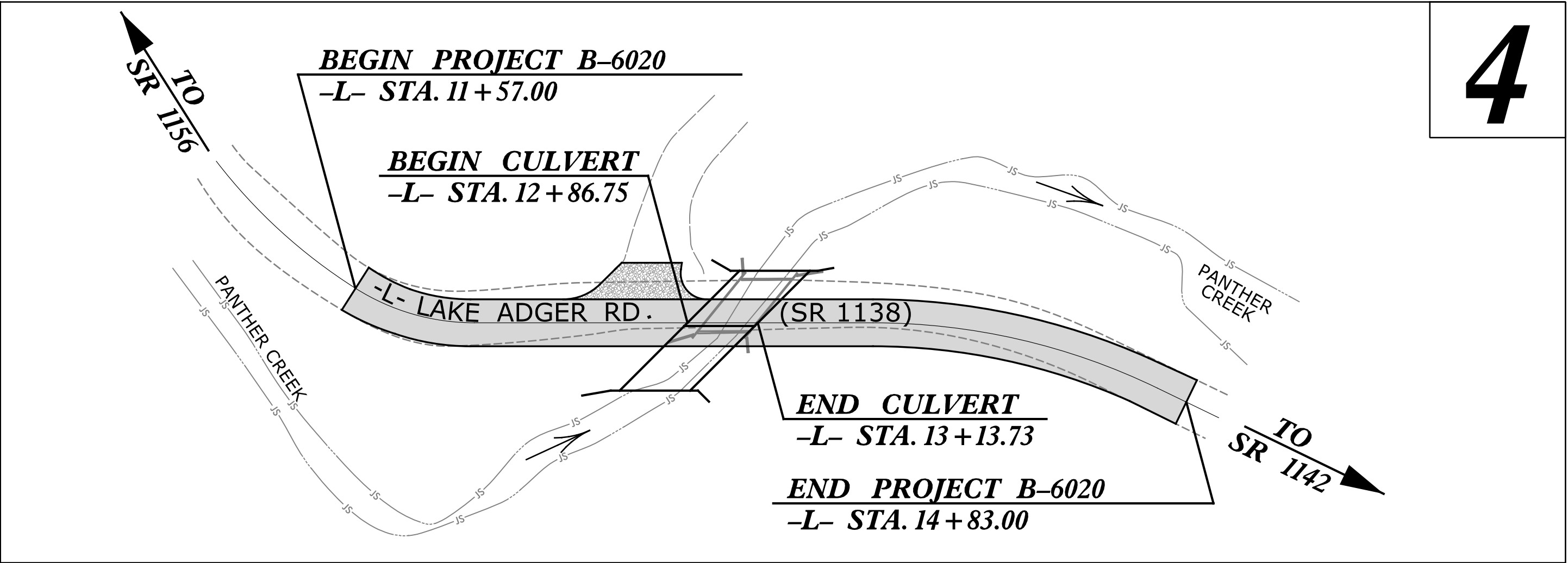
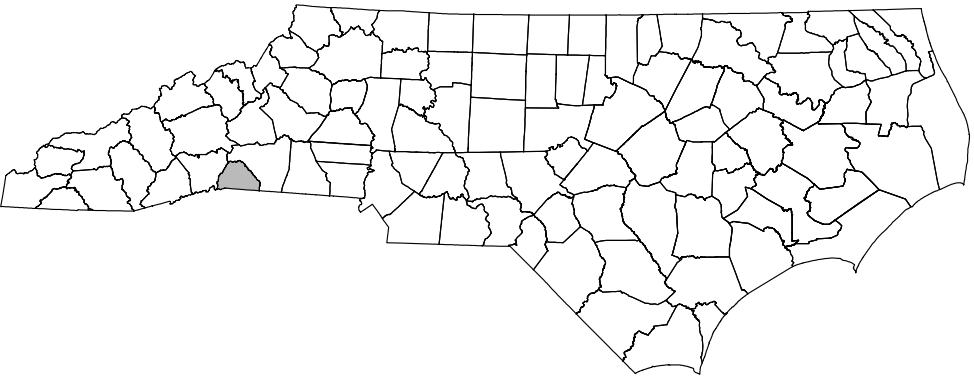
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

POLK COUNTY

**LOCATION: BRIDGE #740144 OVER PANTHER CREEK
ON SR 1138 (LAKE ADGER ROAD)**

TYPE OF WORK: PAVING, GRADING, DRAINAGE & CULVERT

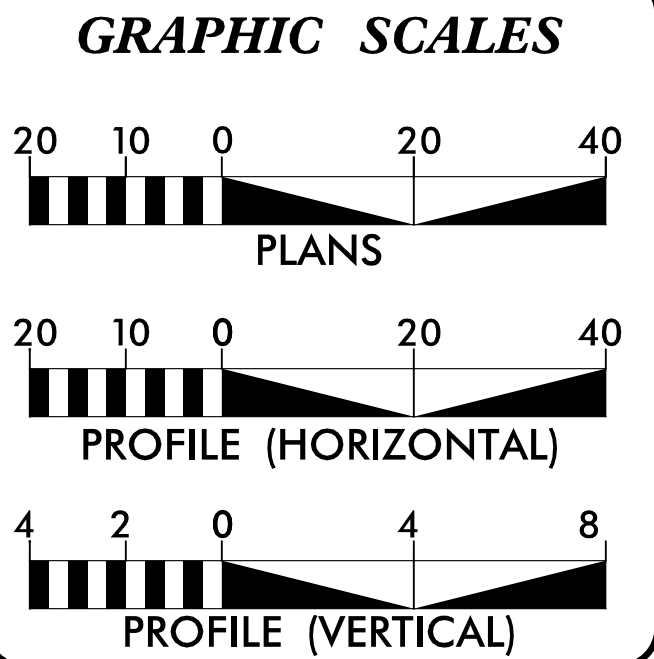
STATE	STATE PROJECT REFERENCE NO.	SHEET NO.	TOTAL SHEETS
N.C.	B-6020	1	
POLK COUNTY		CULVERT #740144	
STATE PROJ. NO.	F.A. PROJ. NO.	DESCRIPTION	
17BP.14.R.50	-	PE	
17BP.14.R.50	-	RW & UTILITIES	
48215.3.1	BRZ-1138(023)	CONST	



NCDOT CONTACT:
HIGHWAY DIVISION 14 BRIDGE MANAGER
ADAM DOCKERY, P.E.
(828) 488-0902

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED



DESIGN DATA

ADT (2010) = 1500
DHV = NA
D = NA
T = 6%
V = 20 MPH
* TTST = NA DUAL NA
FUNC CLASS = RURAL LOCAL (SUBREGIONAL)

PROJECT LENGTH

LENGTH ROADWAY PROJECT B-6020 = 0.057 MILES
LENGTH CULVERT PROJECT B-6020 = 0.005 MILES
TOTAL LENGTH PROJECT B-6020 = 0.062 MILES

Plans Prepared by:

AMERICAN Engineering

AMERICAN ENGINEERING ASSOCIATES - SOUTHEAST, PA
8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
PHONE: 704-375-2438
NC Lic. No. C-3881

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 2, 2015

LETTING DATE:
MAY 14, 2019

ALLISON C. JOHNSON, P.E.
PROJECT ENGINEER

BENJAMIN C. PICKERING II, P.E.
PROJECT DESIGN ENGINEER

HYDRAULIC ENGINEER

DocuSigned by:
Paul Cameron
SIGNATURE:

PAUL H. CAMERON
P.E.

3/20/2019

ROADWAY DESIGN ENGINEER

DocuSigned by:
Benjamin C. Pickering II
SIGNATURE:

BENJAMIN C. PICKERING II
P.E.

3/20/2019

**DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA**

12/05/11

Note: Not to Scale

**S.U.E. = Subsurface Utility Engineering*

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

CONVENTIONAL PLAN SHEET SYMBOLS

PROJECT REFERENCE NO.	SHEET NO.
B-6020	1B

BOUNDARIES AND PROPERTY:

State Line	
County Line	
Township Line	
City Line	
Reservation Line	
Property Line	
Existing Iron Pin	⊙ EIP
Property Corner	✕
Property Monument	⊠ ECM
Parcel/Sequence Number	⑫③
Existing Fence Line	✕-✕-✕-✕
Proposed Woven Wire Fence	○
Proposed Chain Link Fence	⊠
Proposed Barbed Wire Fence	◇
Existing Wetland Boundary	---WLB---
Proposed Wetland Boundary	-WLB-
Existing Endangered Animal Boundary	---EAB---
Existing Endangered Plant Boundary	---EPB---
Known Soil Contamination: Area or Site	☠☠
Potential Soil Contamination: Area or Site	☠☠?

BUILDINGS AND OTHER CULTURE:

Gas Pump Vent or U/G Tank Cap	○
Sign	⊙
Well	⊙ W
Small Mine	⚡
Foundation	▭
Area Outline	▭
Cemetery	⊠ †
Building	▭
School	▭ 旗
Church	⊠ ✠
Dam	▭

HYDROLOGY:

Stream or Body of Water	
Hydro, Pool or Reservoir	▭
Jurisdictional Stream	—JS—
Buffer Zone 1	—BZ 1—
Buffer Zone 2	—BZ 2—
Flow Arrow	←
Disappearing Stream	➤
Spring	⊙
Wetland	⬇
Proposed Lateral, Tail, Head Ditch	➤ ← FLOW
False Sump	▽

RAILROADS:

Standard Gauge	CSX TRANSPORTATION
RR Signal Milepost	⊙ MILEPOST 35
Switch	▭ SWITCH
RR Abandoned	+-+ -+ -+ -+
RR Dismantled	----

RIGHT OF WAY:

Baseline Control Point	◆
Existing Right of Way Marker	△
Existing Right of Way Line	—
Proposed Right of Way Line	⊙ RW
Proposed Right of Way Line with Iron Pin and Cap Marker	⊙ RW ▲
Proposed Right of Way Line with Concrete or Granite RW Marker	▲ ⊙ RW
Proposed Control of Access Line with Concrete CA Marker	⊙ CA
Existing Control of Access	⊙ A
Proposed Control of Access	⊙ A
Existing Easement Line	—E—
Proposed Temporary Construction Easement	—E—
Proposed Temporary Drainage Easement	—TDE—
Proposed Permanent Drainage Easement	—PDE—
Proposed Permanent Drainage / Utility Easement	—DUE—
Proposed Permanent Utility Easement	—PUE—
Proposed Temporary Utility Easement	—TUE—
Proposed Aerial Utility Easement	—AUE—

Proposed Permanent Easement with Iron Pin and Cap Marker	◆
----------------------------------------------------------	---

ROADS AND RELATED FEATURES:

Existing Edge of Pavement	----
Existing Curb	----
Proposed Slope Stakes Cut	---C---
Proposed Slope Stakes Fill	---F---
Proposed Curb Ramp	⊙ CR
Existing Metal Guardrail	—T—T—T—T—
Proposed Guardrail	—T—T—T—T—
Existing Cable Guiderail	—▭—▭—▭—
Proposed Cable Guiderail	—▭—▭—▭—
Equality Symbol	⊙
Pavement Removal	▭
Single Tree	☼
Single Shrub	☼
Hedge	~~~~~
Woods Line	~~~~~

Orchard	☼☼☼☼
Vineyard	▭ Vineyard

EXISTING STRUCTURES:

MAJOR:	
Bridge, Tunnel or Box Culvert	▭ CONC
Bridge Wing Wall, Head Wall and End Wall	⌋ CONC WW ⌋
MINOR:	
Head and End Wall	⌋ CONC HW ⌋
Pipe Culvert	▭
Footbridge	➤ ————— ➤
Drainage Box: Catch Basin, DI or JB	▭ CB
Paved Ditch Gutter	----
Storm Sewer Manhole	⊙ S
Storm Sewer	—S—

UTILITIES:

POWER:	
Existing Power Pole	●
Proposed Power Pole	⊙
Existing Joint Use Pole	●
Proposed Joint Use Pole	⊙
Power Manhole	⊙ P
Power Line Tower	⊠
Power Transformer	⊠ ⚡
U/G Power Cable Hand Hole	⊠ H
H-Frame Pole	● — ●
Recorded U/G Power Line	—P—
Designated U/G Power Line (S.U.E.*)	---P---

TELEPHONE:

Existing Telephone Pole	●
Proposed Telephone Pole	⊙
Telephone Manhole	⊙ T
Telephone Booth	▭ B
Telephone Pedestal	⊠ T
Telephone Cell Tower	⊙ T
U/G Telephone Cable Hand Hole	⊠ H
Recorded U/G Telephone Cable	—T—
Designated U/G Telephone Cable (S.U.E.*)	---T---
Recorded U/G Telephone Conduit	—TC—
Designated U/G Telephone Conduit (S.U.E.*)	---TC---
Recorded U/G Fiber Optics Cable	—TF0—
Designated U/G Fiber Optics Cable (S.U.E.*)	---TF0---

WATER:

Water Manhole	⊙ W
Water Meter	⊙
Water Valve	⊙ X
Water Hydrant	⊙ H
Recorded U/G Water Line	—W—
Designated U/G Water Line (S.U.E.*)	---W---
Above Ground Water Line	—A/G Water—

TV:

TV Satellite Dish	⌵
TV Pedestal	⊠
TV Tower	⊙ X
U/G TV Cable Hand Hole	⊠ H
Recorded U/G TV Cable	—TV—
Designated U/G TV Cable (S.U.E.*)	---TV---
Recorded U/G Fiber Optic Cable	—TV F0—
Designated U/G Fiber Optic Cable (S.U.E.*)	---TV F0---

GAS:

Gas Valve	◇
Gas Meter	⊙ G
Recorded U/G Gas Line	—G—
Designated U/G Gas Line (S.U.E.*)	---G---
Above Ground Gas Line	—A/G Gas—

SANITARY SEWER:

Sanitary Sewer Manhole	⊙ S
Sanitary Sewer Cleanout	⊙ +
U/G Sanitary Sewer Line	—SS—
Above Ground Sanitary Sewer	—A/G Sanitary Sewer—
Recorded SS Forced Main Line	—FSS—
Designated SS Forced Main Line (S.U.E.*)	---FSS---

MISCELLANEOUS:

Utility Pole	●
Utility Pole with Base	⊠
Utility Located Object	⊙
Utility Traffic Signal Box	⊠ S
Utility Unknown U/G Line	—UTUL—
U/G Tank; Water, Gas, Oil	▭
Underground Storage Tank, Approx. Loc.	⊠ UST
A/G Tank; Water, Gas, Oil	▭
Geoenvironmental Boring	⊙ B
U/G Test Hole (S.U.E.*)	⊙
Abandoned According to Utility Records	AATUR
End of Information	E.O.I.

6/22/99

SURVEY CONTROL SHEET 74-0144

-FINAL-

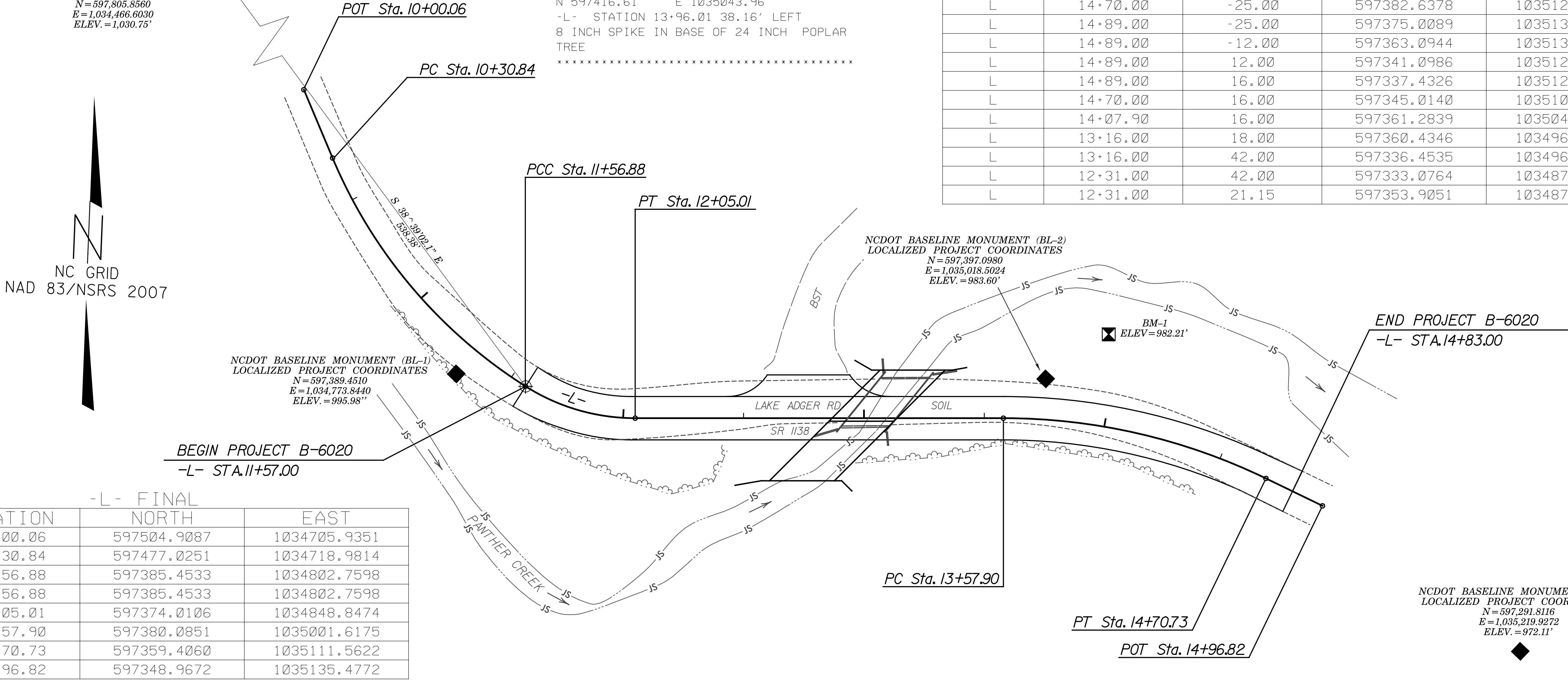
PROJECT REFERENCE NO.	SHEET NO.
B-6020	1C-1
Location and Surveys	

BL	POINT	DESC.	NORTH	EAST	ELEVATION	L STATION	OFFSET
1		BL-1	597389.4510	1034773.8440	995.98	11+31.37	12.73 RT
2		BL-2	597397.0980	1035018.5024	983.60	13+74.35	16.91 LT
3		BL-3	597291.8116	1035219.9272	972.11	OUTSIDE PROJECT LIMITS	

-FINAL- ROW MARKER IRON PIN AND CAP-E				
ALIGN	STATION	OFFSET	NORTH	EAST
L	12+95.00	-32.00	597409.5608	1034937.4951
L	12+95.00	-40.00	597417.5544	1034937.1772
L	13+51.00	-40.00	597419.7794	1034993.1330
L	13+51.00	-32.00	597411.7857	1034993.4508
L	14+28.06	-25.00	597397.3411	1035077.1605
L	14+70.00	-25.00	597382.6378	1035120.8287
L	14+89.00	-25.00	597375.0089	1035138.3093
L	14+89.00	-12.00	597363.0944	1035133.1086
L	14+89.00	12.00	597341.0986	1035123.5075
L	14+89.00	16.00	597337.4326	1035121.9073
L	14+70.00	16.00	597345.0140	1035104.5362
L	14+07.90	16.00	597361.2839	1035048.8915
L	13+16.00	18.00	597360.4346	1034960.4650
L	13+16.00	42.00	597336.4535	1034961.4186
L	12+31.00	42.00	597333.0764	1034876.4857
L	12+31.00	21.15	597353.9051	1034875.6575

NCDOT GPS MONUMENT (G-101)
LOCALIZED PROJECT COORDINATES
N=597,805.8560
E=1,034,466.6030
ELEV.=1,030.75'

BM1 ELEVATION = 982.21
N 597416.61 E 1035043.96
-L- STATION 13+96.01 38.16' LEFT
8 INCH SPIKE IN BASE OF 24 INCH POPLAR
TREE



DATUM DESCRIPTION

THE LOCALIZED COORDINATE SYSTEM DEVELOPED FOR THIS PROJECT IS BASED ON THE STATE PLANE COORDINATES ESTABLISHED BY NCGS FOR MONUMENT "740144-G101" WITH NAD 83/NSRS 2007 STATE PLANE GRID COORDINATES OF NORTHING: 597805.8560(+) EASTING: 1034466.6030(+) ELEVATION: 1030.75(+)

THE AVERAGE COMBINED GRID FACTOR USED ON THIS PROJECT (GROUND TO GRID) IS: 0.9998304745

THE N.C. LAMBERT GRID BEARING AND LOCALIZED HORIZONTAL GROUND DISTANCE FROM "740144-G101" TO -L- STATION 11+57.00 IS S38°39'2.09"E 538.38 (+)

ALL LINEAR DIMENSIONS ARE LOCALIZED HORIZONTAL DISTANCES

VERTICAL DATUM USED IS NAVD 88

GEOID MODEL - G09NC
NOTE: DRAWING NOT TO SCALE

NOTES:

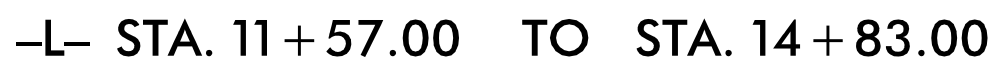
1. THE CONTROL DATA FOR THIS PROJECT CAN BE FOUND ELECTRONICALLY BY SELECTING PROJECT CONTROL DATA AT:
[HTTPS://CONNECT.NCDOT.GOV/RESOURCES/LOCATION/](https://connect.ncdot.gov/resources/location/)

THE FILES TO BE FOUND ARE AS FOLLOWS:
740144_LS_CONTROL.TXT

SITE CALIBRATION INFORMATION HAS NOT BEEN PROVIDED FOR THIS PROJECT. IF FURTHER INFORMATION IS NEEDED, PLEASE CONTACT THE LOCATION AND SURVEYS UNIT.


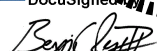

INDICATES GEODETIC CONTROL MONUMENTS USED OR SET FOR HORIZONTAL PROJECT CONTROL BY THE NCDOT LOCATION AND SURVEYS UNIT.

PROJECT CONTROL ESTABLISHED USING GLOBAL POSITIONING SYSTEM.



SEE TRAFFIC MANAGEMENT PLANS FOR STAGING AND TEMPORARY WIDENING

NOTE: PAVEMENT EDGE SLOPES ARE 1:1 UNLESS SHOWN OTHERWISE

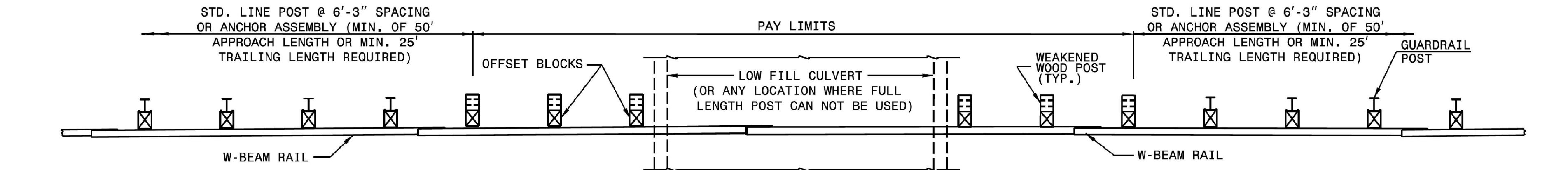
PROJECT REFERENCE NO.		SHEET NO.	
B-6020		2A-1	
POLK COUNTY		CULVERT # 740144	
ROADWAY DESIGN ENGINEER		PAVEMENT DESIGN ENGINEER	
			
DocuSign 		3/18/2019	
EERO010022804F		Plans Prepared By:	
 <div style="display: inline-block; vertical-align: middle;"> <h1 style="margin: 0;">AMERICAN</h1> <h2 style="margin: 0;">Engineering</h2> </div>			
8008 CORPORATE CENTER DRIVE, SUITE 110 CHARLOTTE, NORTH CAROLINA 28226 NC Lic. No. C-3881			
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED			

8/17/99

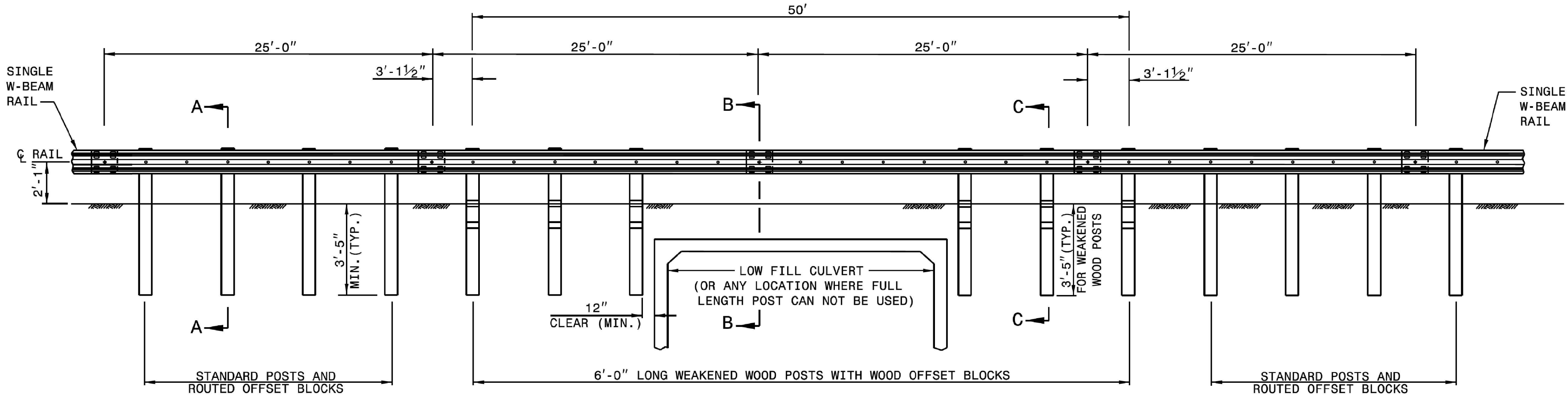
STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25'-0" CLEAR SPAN

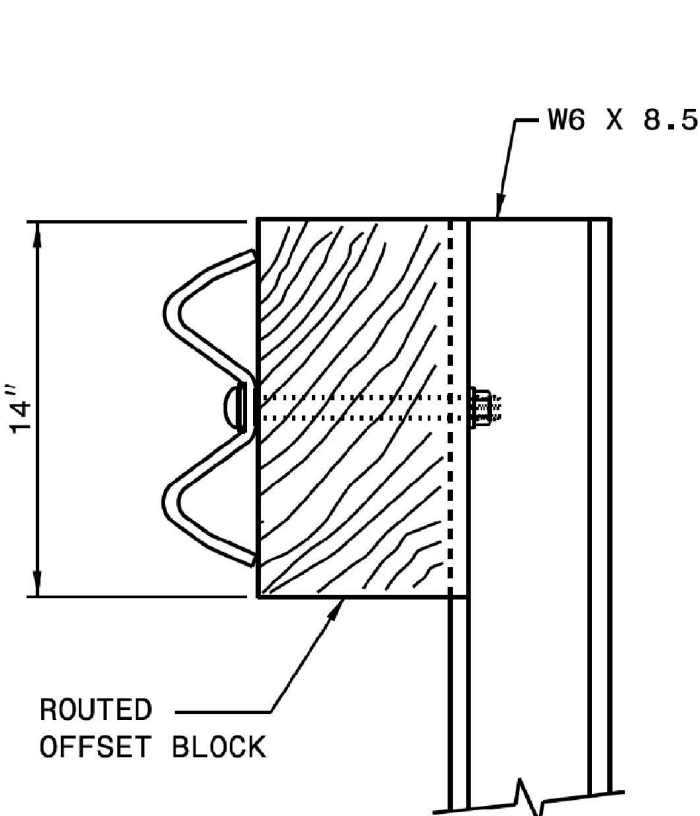
SHEET - OF -
862D01



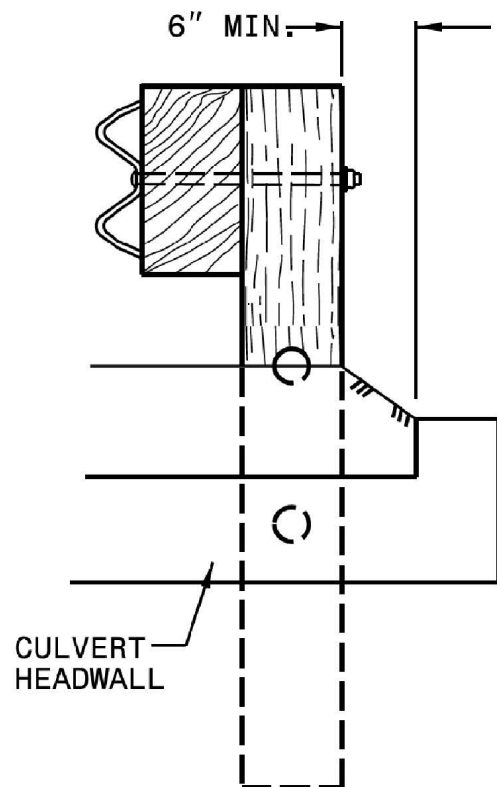
PLAN



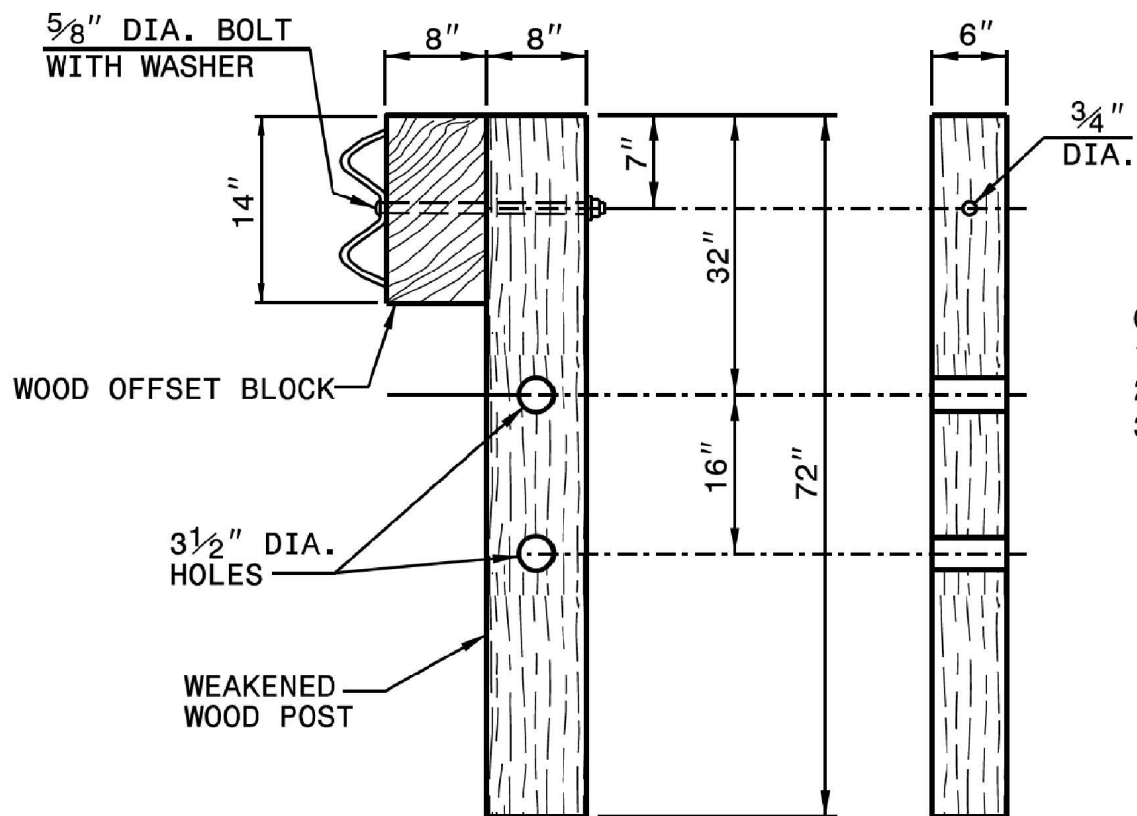
**ELEVATION
25'-0" GUARDRAIL SPAN**



SECTION A-A



SECTION B-B




**SECTION C-C
FRONT
WEAKENED WOOD POST**

- GENERAL NOTES:
1. LAP RAIL IN THE DIRECTION OF TRAFFIC FLOW.
 2. SEE ROADWAY PLANS FOR LOCATIONS AND CONTINUATION OF RAIL OR END SECTIONS.
 3. MINIMUM DISTANCE OF 5 FEET BEHIND THE GUARDRAIL SHOULD BE CLEAR OF ANY FIXED-OBJECT HAZARDS THAT COULD SNAG AN IMPACTING VEHICLE.

STATE OF
NORTH CAROLINA
DEPT. OF TRANSPORTATION
DIVISION OF HIGHWAYS
RALEIGH, N.C.

SPECIAL DETAIL FOR
GUARDRAIL PLACEMENT
25'-0" CLEAR SPAN

SHEET - OF -
862D01

PROJECT REFERENCE NO.	SHEET NO.
B-6020	2B-1
POLK COUNTY	CULVERT #740144
Plans Prepared By:	
 AMERICAN Engineering 8008 CORPORATE CENTER DRIVE, SUITE 110 CHARLOTTE, NORTH CAROLINA 28226 NC Lic. No. C-3881	



CONTRACTS STANDARDS AND DEVELOPMENT UNIT Office 919-707-6950 FAX 919-250-4119	
25'-0" CLEAR SPAN GUARDRAIL PLACEMENT	
ORIGINAL BY: _____	DATE: _____
MODIFIED BY: _____	DATE: _____
CHECKED BY: _____	DATE: _____
FILE SPEC.: _____	

DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

8/17/99

COMPUTED BY:	BCP	DATE:	2/21/19
CHECKED BY:	ACJ	DATE:	2/21/19

SUMMARY OF EARTHWORK
(in Cubic Yards)

STATION	STATION	UNCL EXCAV.	EMBANK.	BORROW	WASTE
PHASE 1					
-L- STA. 11+57	-L- STA. 14+83	268	300	60	0
PROJECT TOTALS:		268	398	130	0
LOSS DUE TO CLEARING AND GRUBBING		- 100		100	
ESTIMATE 5% FOR TOPSOIL ON BORROW PITS				11	
GRAND TOTALS:		168	398	241	0
SAY:		170		250	

EST UNDERCUT = 50 CY
EST SELECT GRANULAR MATERIAL = 50 CY

Approximate quantities only. Unclassified Excavation, Borrow Excavation, Shoulder Borrow, Fine Grading, Clearing and Grubbing, Breaking of Existing Pavement, and Removal of Existing Pavement will be paid for at the contract lump sum price for "Grading".

"N" = DISTANCE FROM EDGE OF LANE TO FACE OF GUARDRAIL.
TOTAL SHOULDER WIDTH = DISTANCE FROM EDGE OF TRAVEL LANE TO SHOULDER BREAK POINT.
FLARE LENGTH = DISTANCE FROM LAST SECTION OF PARALLEL GUARDRAIL TO END OF GUARDRAIL.
W = TOTAL WIDTH OF FLARE FROM BEGINNING OF TAPER TO END OF GUARDRAIL.
G = GATING IMPACT ATTENUATOR TYPE 350
NG = NON-GATING IMPACT ATTENUATOR TYPE 350

GUARDRAIL SUMMARY

SURVEY LINE	BEG. STA.	END STA.	LOCATION	LENGTH			WARRANT POINT		"N" DIST. FROM E.O.L.	TOTAL SHOUL WIDTH	FLARE LENGTH		W		ANCHORS								IMPACT ATTENUATOR TYPE 350			SINGLE FACED GUARDRAIL	REMOVE EXISTING GUARDRAIL	REMOVE AND STOCKPILE EXISTING GUARDRAIL	REMARKS
				STRAIGHT	SHOP CURVED	DOUBLE FACED	APPROACH END	TRAILING END			APPROACH END	TRAILING END	APPROACH END	TRAILING END	GREU TYPE-III	B-77	GREU TL-2	GREU TL-3	CAT-1	AT-1	TYPE III SC	B-77 SC		EA	G	NG			
-L-	12+08	13+34	RT.	126'					3'	6'							2												GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
-L-	12+87	13+75	LT.	75.5'	12.5'				3'	6'							1			1									GUARDRAIL CALCULATED USING SUBREGIONAL TIER GUIDELINES
			SUBTOTALS	201.5'	12.5'										DEDUCTIONS FOR GUARDRAIL END UNITS														
			DEDUCTION	131.25'											TYPE AT-1		1 @ 6.25'		6.25'										
			TOTAL	70.25'	12.5'										GREU TYPE TL-2		3 @ 25.00'		75'										
			SAY	75'	12.5'												TOTAL =		81.25'										


DEDUCTIONS FOR 25'-0" CLEAR SPAN GUARDRAIL PLACEMENT = 50'

PROJECT REFERENCE NO.
B-6020

SHEET NO.
3B-1

POLK COUNTY CULVERT #740144

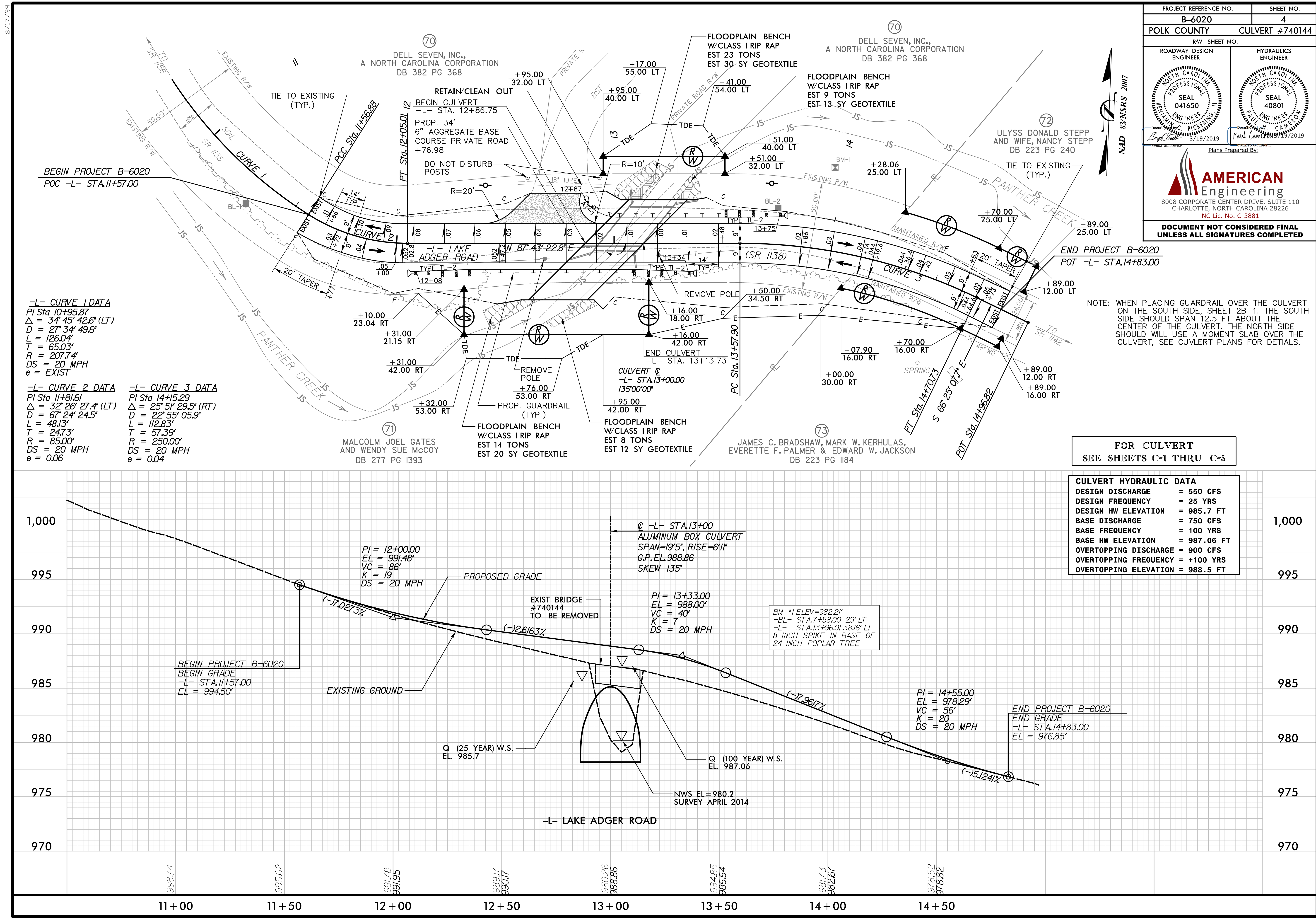
Plans Prepared By:



AMERICAN
Engineering

8008 CORPORATE CENTER DRIVE, SUITE 110
CHARLOTTE, NORTH CAROLINA 28226
NC Lic. No. C-3881

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-L- CURVE 1 DATA
PI Sta 10+95.87
 $\Delta = 34^{\circ} 45' 42.6"$ (LT)
 $D = 27^{\circ} 34' 49.6"$
 $L = 126.04'$
 $T = 65.03'$
 $R = 207.74'$
 $DS = 20$ MPH
 $e = EXIST$

-L- CURVE 2 DATA
PI Sta 11+81.61
 $\Delta = 32^{\circ} 26' 27.4"$ (LT)
 $D = 67^{\circ} 24' 24.5"$
 $L = 48.13'$
 $T = 24.73'$
 $R = 85.00'$
 $DS = 20$ MPH
 $e = 0.06$

-L- CURVE 3 DATA
PI Sta 14+52.9
 $\Delta = 25^{\circ} 51' 29.5"$ (RT)
 $D = 22^{\circ} 55' 05.9"$
 $L = 112.83'$
 $T = 57.39'$
 $R = 250.00'$
 $DS = 20$ MPH
 $e = 0.04$

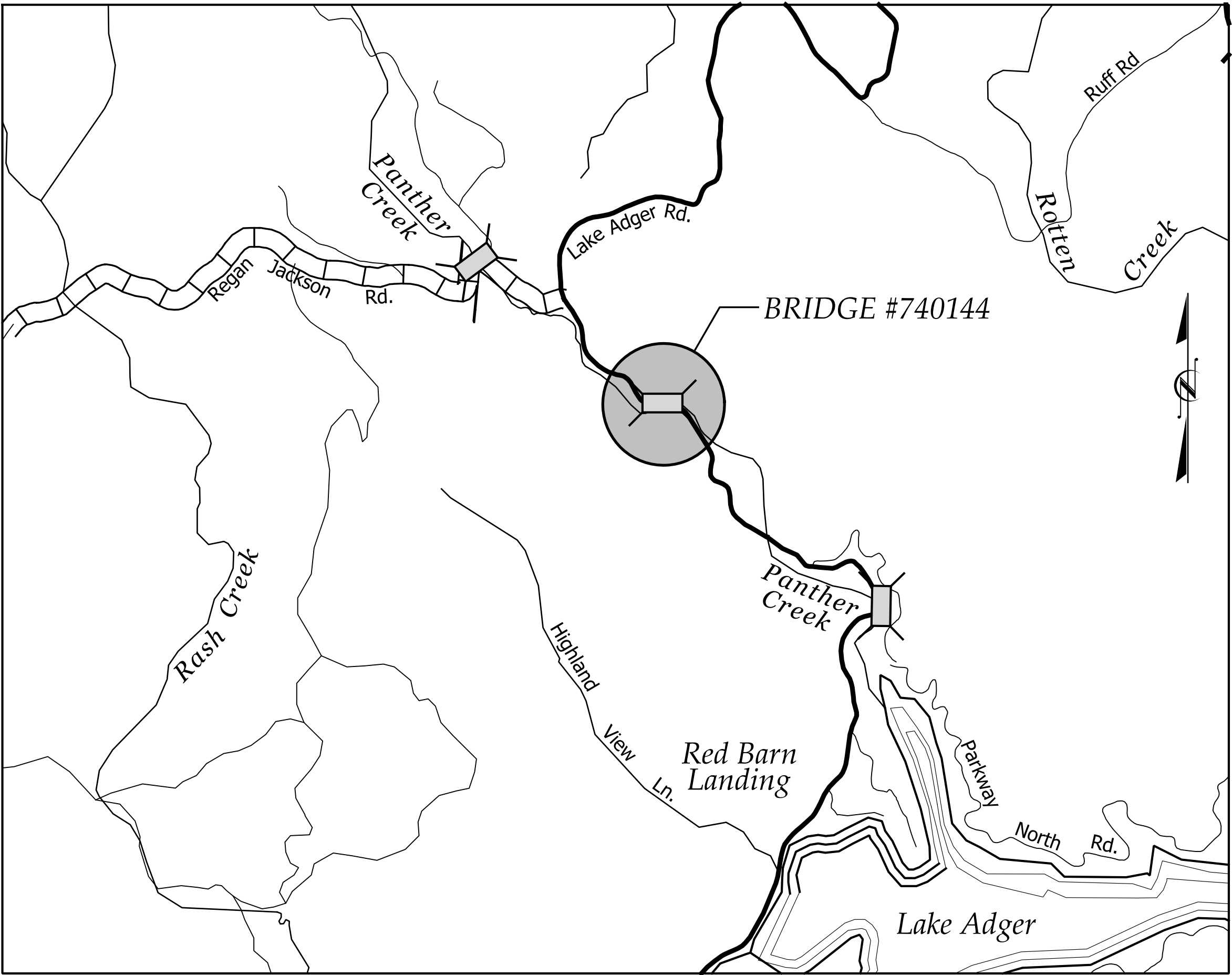
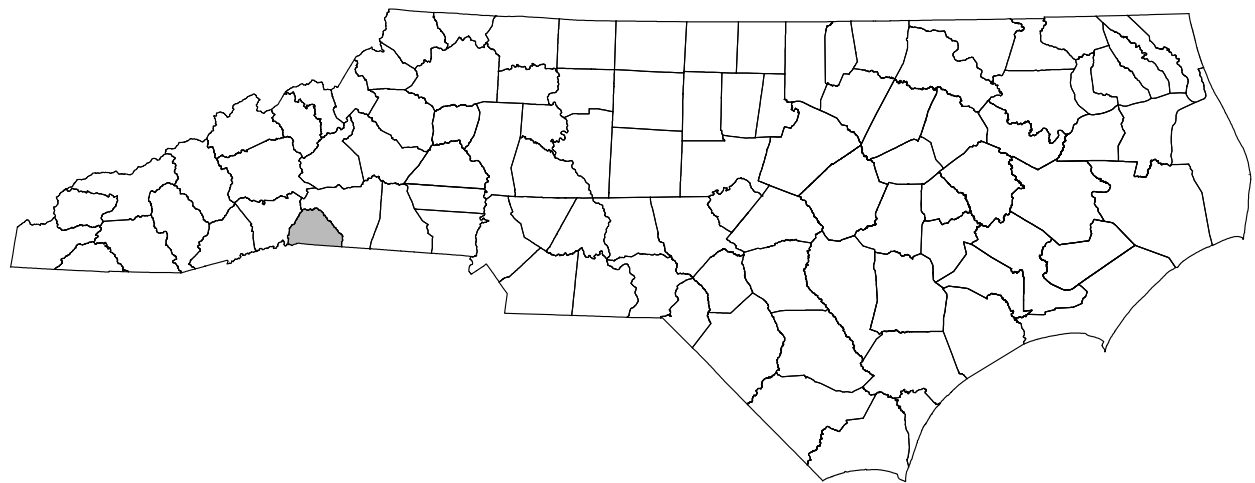
**FOR CULVERT
SEE SHEETS C-1 THRU C-5**

CULVERT HYDRAULIC DATA
DESIGN DISCHARGE = 550 CFS
DESIGN FREQUENCY = 25 YRS
DESIGN HW ELEVATION = 985.7 FT
BASE DISCHARGE = 750 CFS
BASE FREQUENCY = 100 YRS
BASE HW ELEVATION = 987.06 FT
OVERTOPPING DISCHARGE = 900 CFS
OVERTOPPING FREQUENCY = +100 YRS
OVERTOPPING ELEVATION = 988.5 FT

STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

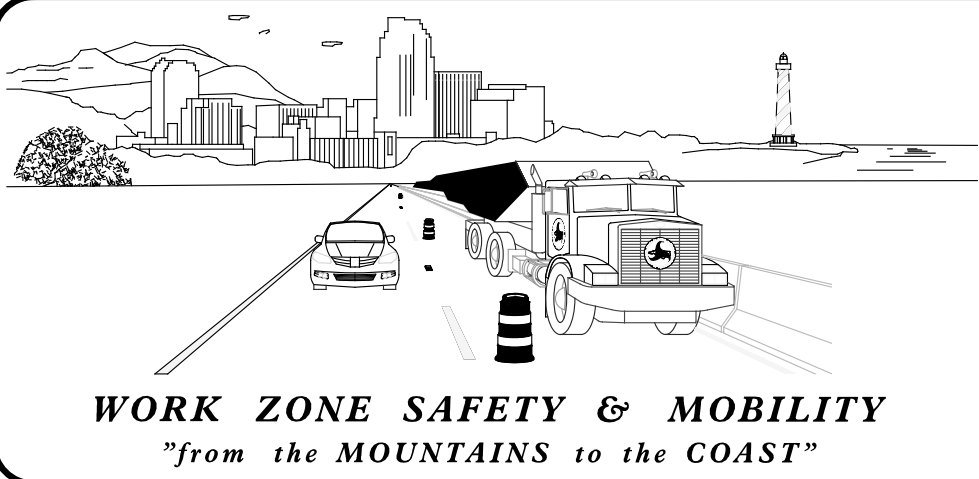
TRANSPORTATION MANAGEMENT PLAN

POLK COUNTY

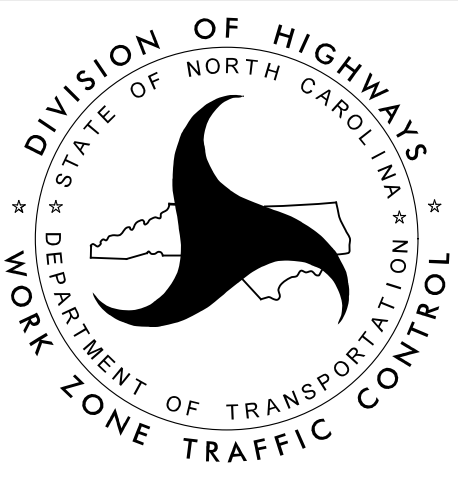


VICINITY MAP
NTS

LOCATION: BRIDGE #740144 OVER PANTHER CREEK ON SR 1138 (LAKE ADGER RD.)



N.C.D.O.T. WORK ZONE TRAFFIC CONTROL 1561 MAIL SERVICE CENTER (MSC) RALEIGH, NC 27699-1561 750 N. GREENFIELD PARKWAY, GARNER, NC 27529 (DELIVERY) PHONE: (919) 773-2800 FAX: (919) 771-2745	
JOSEPH E. HUMMER, P.E.	STATE TRAFFIC MANAGEMENT ENGINEER
ALLISON C. JOHNSON, P.E.	TRAFFIC CONTROL PROJECT ENGINEER
BENJAMIN C. PICKERING II, P.E.	TRAFFIC CONTROL PROJECT DESIGN ENGINEER
	TRAFFIC CONTROL DESIGN ENGINEER





Plans Prepared By:
AMERICAN
Engineering

AMERICAN ENGINEERING ASSOCIATES - SOUTHEAST, PA
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APPROVED: 
DATE: 3/19/2019

SEAL


DOCUMENT NOT CONSIDERED FINAL
UNLESS ALL SIGNATURES COMPLETED

SHEET NO.
TMP-1

PROJECT: B-6020

SHEET NO.	TITLE
TMP-1	TITLE SHEET, VICINITY MAP AND INDEX OF SHEETS
TMP-1A	LIST OF APPLICABLE ROADWAY STANDARD DRAWINGS, AND LEGEND
TMP-1B	TRANSPORTATION OPERATIONS PLAN: (MANAGEMENT STRATEGIES, GENERAL NOTES AND LOCAL NOTES)
TMP-2	PORTABLE CONCRETE BARRIER AT TEMPORARY SHORING LOCATIONS
TMP-3	TRAFFIC CONTROL PHASE 1
TMP-4	TRAFFIC CONTROL PHASE 2
TMP-5	TRAFFIC CONTROL PHASE 3






ROADWAY STANDARD DRAWINGS


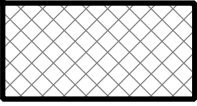

THE FOLLOWING ROADWAY STANDARDS AS SHOWN IN "ROADWAY STANDARD DRAWINGS" - PROJECT SERVICES UNIT - N.C. DEPARTMENT OF TRANSPORTATION - RALEIGH, N.C., DATED JANUARY 2018 ARE APPLICABLE TO THIS PROJECT AND BY REFERENCE HEREBY ARE CONSIDERED A PART OF THESE PLANS:

STD. NO.	TITLE
1101.01	WORK ZONE ADVANCE WARNING SIGNS
1101.02	TEMPORARY LANE CLOSURES
1101.03	TEMPORARY ROAD CLOSURES
1101.04	TEMPORARY SHOULDER CLOSURES
1101.05	WORK ZONE VEHICLE ACCESSES
1101.06	WARNING SIGNS FOR BLASTING ZONES
1101.11	TRAFFIC CONTROL DESIGN TABLES
1110.01	STATIONARY WORK ZONE SIGNS
1110.02	PORTABLE WORK ZONE SIGNS
1115.01	FLASHING ARROW BOARDS
1130.01	DRUM
1135.01	CONES
1145.01	BARRICADES - TYPE III
1150.01	FLAGGERS
1160.01	TEMPORARY CRASH CUSHION - REFLECTIVE END TREATMENT
1165.01	TRUCK MOUNTED ATTENUATOR
1170.01	PORTABLE CONCRETE BARRIER
1180.01	SKINNY DRUM
1205.01	PAVEMENT MARKINGS - LINE TYPES AND OFFSETS
1205.02	PAVEMENT MARKINGS - TWO-LANE AND MULTI-LANE ROADWAYS
1205.12	PAVEMENT MARKINGS - BRIDGES
1250.01	PAVEMENT MARKER SPACING
1251.01	RAISED PAVEMENT MARKERS - PERMANENT AND TEMPORARY
1261.01	GUARDRAIL AND BARRIER DELINEATOR SPACING
1261.02	GUARDRAIL AND BARRIER DELINEATOR TYPES
1262.01	GUARDRAIL END DELINATION


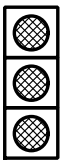
LEGEND

GENERAL

-  DIRECTION OF TRAFFIC FLOW
-  DIRECTION OF PEDESTRIAN TRAFFIC FLOW
-  EXIST. EDGE OF PAVEMENT
-  NORTH ARROW
-  PROPOSED PAVEMENT

-  WORK AREA
-  CONSTRUCT UNDER TRAFFIC
-  TEMPORARY AGGREGATE BASE COURSE
















SIGNALS

-  EXISTING
-  PROPOSED
-  TEMPORARY




PAVEMENT MARKINGS

-  EXISTING LINES
-  TEMPORARY LINES




TRAFFIC CONTROL DEVICES

-  BARRICADE (TYPE I)
-  BARRICADE (TYPE II)
-  BARRICADE (TYPE III)
-  PORTABLE CONCRETE BARRIER
-  CONE
-  TUBULAR MARKER
-  DRUM
-  SKINNY DRUM
-  TEMPORARY CRASH CUSHION
-  FLASHING ARROW BOARD
-  FLAGGER
-  WARNING FLAGS
-  LAW ENFORCEMENT
-  TRUCK MOUNTED ATTENUATOR (TMA)
-  CHANGEABLE MESSAGE SIGN

TEMPORARY SIGNING


-  PORTABLE SIGN
-  STATIONARY SIGN
-  STATIONARY OR PORTABLE SIGN

PAVEMENT MARKERS


-  CRYSTAL/CRYSTAL
-  CRYSTAL/RED
-  YELLOW/YELLOW

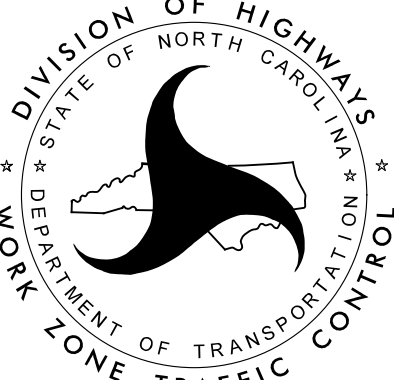
PAVEMENT MARKING SYMBOLS

-   
- PAVEMENT MARKING SYMBOLS

APPROVED:  DATE: 3/19/2019

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ROADWAY STANDARD
DRAWINGS & LEGEND

8/17/99

GENERAL NOTES

CHANGES MAY BE REQUIRED WHEN PHYSICAL DIMENSIONS IN THE DETAIL DRAWINGS, STANDARD DETAILS, AND ROADWAY DETAILS ARE NOT ATTAINABLE TO MEET FIELD CONDITIONS OR RESULT IN DUPLICATE OR UNDESIRED OVERLAPPING OF DEVICES. MODIFICATION MAY INCLUDE: MOVING, SUPPLEMENTING, COVERING, OR REMOVAL OF DEVICES AS DIRECTED BY THE ENGINEER.

THE FOLLOWING GENERAL NOTES APPLY AT ALL TIMES FOR THE DURATION OF THE CONSTRUCTION PROJECT EXCEPT WHEN OTHERWISE NOTED IN THE PLAN OR DIRECTED BY THE ENGINEER.

MAINTAIN DRIVEWAY ACCESS TO PROPERTY OWNERS AT ALL TIMES.

TRAFFIC PATTERN ALTERATIONS

- A) NOTIFY THE ENGINEER TWENTY ONE (21) CALENDAR DAYS PRIOR TO ANY TRAFFIC PATTERN ALTERATION.

SIGNING

- B) INSTALL ADVANCE WORK ZONE WARNING SIGNS WHEN WORK IS WITHIN 40 FT FROM THE EDGE OF TRAVEL LANE AND NO MORE THAN THREE (3) DAYS PRIOR TO THE BEGINNING OF CONSTRUCTION.

- C) ENSURE ALL NECESSARY SIGNING IS IN PLACE PRIOR TO ALTERING ANY TRAFFIC PATTERN.

LANE AND SHOULDER CLOSURE REQUIREMENTS

- D) REMOVE LANE CLOSURE DEVICES FROM THE LANE WHEN WORK IS NOT BEING PERFORMED BEHIND THE LANE CLOSURE OR WHEN A LANE CLOSURE IS NO LONGER NEEDED OR AS DIRECTED BY THE ENGINEER.

- E) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN 15 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN SHOULDER USING ROADWAY STANDARD DRAWING NO. 1101.04 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL OR A LANE CLOSURE IS INSTALLED.

- F) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING ON THE SHOULDER ADJACENT TO AN UNDIVIDED FACILITY AND WITHIN 5 FT OF AN OPEN TRAVEL LANE, CLOSE THE NEAREST OPEN TRAVEL LANE USING ROADWAY STANDARD DRAWING NO. 1101.02 UNLESS THE WORK AREA IS PROTECTED BY BARRIER OR GUARDRAIL.

- G) WHEN PERSONNEL AND/OR EQUIPMENT ARE WORKING WITHIN A LANE OF TRAVEL OF AN UNDIVIDED OR DIVIDED FACILITY, CLOSE THE LANE ACCORDING TO THE TRAFFIC CONTROL PLANS, ROADWAY STANDARD DRAWINGS, OR AS DIRECTED BY THE ENGINEER. CONDUCT THE WORK SO THAT ALL PERSONNEL AND/OR EQUIPMENT REMAIN WITHIN THE CLOSED TRAVEL LANE.

- H) DO NOT WORK SIMULTANEOUSLY WITHIN 15 FT ON BOTH SIDES OF AN OPEN TRAVELWAY WITHIN THE SAME LOCATION UNLESS PROTECTED WITH GUARDRAIL OR BARRIER.

TRAFFIC BARRIER

- I) INSTALL TEMPORARY BARRIER ACCORDING TO THE TRANSPORTATION MANAGEMENT PLANS A MAXIMUM OF TWO (2) WEEKS PRIOR TO BEGINNING WORK IN ANY LOCATION. ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION PROCEED IN A CONTINUOUS MANNER TO COMPLETE THE PROPOSED WORK IN THAT LOCATION UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS OR AS DIRECTED BY THE ENGINEER.

DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE, WITHOUT APPROVAL BY THE ENGINEER.

ONCE TEMPORARY BARRIER IS INSTALLED AT ANY LOCATION AND NO WORK IS PERFORMED BEHIND THE TEMPORARY BARRIER FOR A PERIOD LONGER THAN TWO (2) MONTHS, REMOVE / RESET TEMPORARY BARRIER AT NO COST TO THE DEPARTMENT UNLESS OTHERWISE STATED IN THE TRANSPORTATION MANAGEMENT PLANS, TEMPORARY BARRIER IS PROTECTING A HAZARD, OR AS DIRECTED BY THE ENGINEER.

INSTALL TEMPORARY BARRIER WITH THE TRAFFIC FLOW BEGINNING WITH THE UPSTREAM SIDE OF TRAFFIC. REMOVE TEMPORARY BARRIER AGAINST THE TRAFFIC FLOW BEGINNING WITH THE DOWNSTREAM SIDE OF TRAFFIC.INSTALL AND SPACE DRUMS NO GREATER THAN TWICE THE POSTED SPEED LIMIT (MPH) TO CLOSE OR KEEP THE SECTION OF THE ROADWAY CLOSED UNTIL THE TEMPORARY BARRIER CAN BE PLACED OR AFTER THE TEMPORARY BARRIER IS REMOVED.

- J) PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER AT ALL TIMES DURING THE INSTALLATION AND REMOVAL OF THE BARRIER BY EITHER A TRUCK MOUNTED ATTENUATOR (MAXIMUM 72 HOURS) OR A TEMPORARY CRASH CUSHION.

PROTECT THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER FROM ONCOMING TRAFFIC AT ALL TIMES BY A TEMPORARY CRASH CUSHION UNLESS THE APPROACH END OF MOVABLE/PORTABLE CONCRETE BARRIER IS OFFSET FROM ONCOMING TRAFFIC AS FOLLOWS OR AS SHOWN IN THE PLANS: (SEE ALSO 1101.05)

POSTED SPEED LIMIT	MINIMUM OFFSET
40 OR LESS	15 FT
45 - 50	20 FT

TRAFFIC CONTROL DEVICES

- K) WHEN LANE CLOSURES ARE NOT IN EFFECT SPACE CHANNELIZING DEVICES IN WORK AREAS NO GREATER IN FEET THAN TWICE THE POSTED SPEED LIMIT (MPH) EXCEPT,10 FT ON-CENTER IN RADII, AND 3 FT OFF THE EDGE OF AN OPEN TRAVELWAY. REFER TO STANDARD SPECIFICATIONS FOR ROADS AND STRUCTURES SECTIONS 1130 (DRUMS), 1135 (CONES) AND 1180 (SKINNY DRUMS) FOR ADDITIONAL REQUIREMENTS.

LOCAL NOTES

- 1) TEMPORARY TRAFFIC SIGNALS SHOWN ARE ASSUMED TO BE PORTABLE TEMPORARY TRAFFIC SIGNALS SUPPLIED BY THE CONTRACTOR. PORTABLE TEMPORARY TRAFFIC SIGNALS ARE TO BE SET A MINIMUM OF 2 FEET OUTSIDE OF THE LANE BEING CONTROLLED. THE BOTTOM OF THE SIGNAL HEAD HOUSING SHALL BE A MINIMUM OF 7 FEET ABOVE THE PAVEMENT.

- 2) THE CONTRACTOR SHALL NOTIFY THE ENGINEER IN WRITING A MINIMUM OF ONE (1) MONTH BEFORE THE TEMPORARY TRAFFIC SIGNAL INSTALLATION IS REQUIRED AND 15 DAYS PRIOR TO THE INSTALLATION OF A LANE CLOSURE.

- 3) PLACE REFLECTIVE DELINEATORS ON TOP OF PORTABLE CONCRETE BARRIER PER NCDOT STD 1170.01 SHEET 5 OF 5 - SPACED AT 25 FOOT INCREMENTS PER NCDOT STD 1261.01.

- 4) CONTRACTOR SHALL ASSURE THAT THE ANCHORING OF THE PORTABLE CONCRETE BARRIER AND ASSOCIATED CRASH CUSHIONS DOES NOT INTERFERE WITH EXISTING OR PROPOSED UTILITIES.

- 5) BARRIER SHALL BE ANCHORED WHERE DROPOFFS EXCEED ALLOWABLE DISTANCE, WHERE BARRIER DEFLECTION DOES NOT MEET MINIMUM REQUIREMENTS, OR AS DIRECTED BY THE ENGINEER.

- 6) ACCESS TO LAKE ADGER ROAD SHALL BE MAINTAINED FOR FIRE & EMERGENCY SERVICES.

- 7) THE CONTRACTOR SHALL PROVIDE ONE MONTH NOTICE TO ENGINEER, COUNTY EMS AND COUNTY SCHOOL OFFICIALS PRIOR TO ROAD CLOSURES.

- 8) THE CONTRACTOR SHALL PROVIDE DRIVEWAY ACCESS AT ALL TIMES.

PHASING NOTES

STAGE 1

1. THE CONTRACTOR SHALL PLACE ALL CONSTRUCTION WARNING ("ROAD WORK AHEAD" W20-1, "END ROAD WORK" G20-2A) SIGNS THROUGHOUT THE PROJECT WITHIN THE TIME FRAME REQUIRED IN THE GENERAL NOTES PRIOR TO BEGINNING ANY CONSTRUCTION ACTIVITIES, INCLUDING EROSION AND SEDIMENT CONTROL, AND SHALL REMAIN IN PLACE UNTIL CONSTRUCTION IS COMPLETED. INSTALL ALL ADVANCE WORKZONE WARNING SIGNS ON -L-, IN ACCORDANCE WITH NCDOT STD. 1101.01.

2. INSTALL EROSION CONTROL DEVICES THROUGHOUT THE PROJECT IN ACCORDANCE WITH THE APPROVED EROSION CONTROL PLANS, CLEARING ONLY THE AREA NECESSARY TO INSTALL THE DEVICES.

3. USING APPLICABLE SHEETS FROM NCDOT STD. 1101.02 CONSTRUCT TEMPORARY AGGREGATE BASE COURSE FOR STAGE 2 - PHASE 1.

STAGE 2

PHASE 1

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRIERS/ANCHORED BARRICADES AND DRUMS NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE AS DEPICTED ON SHEET TMP-3. INSTALL TEMPORARY SIGNALIZATION TO MAINTAIN A SINGLE LANE OF TRAFFIC FOR BOTH DIRECTIONS OF TRAFFIC WITH ALTERNATING OPERATION ON THE NORTH SIDE OF THE EXISTING BRIDGE #740144. USE APPLICABLE SHEETS FROM NCDOT STD 1101.02. REMOVE ANY CONFLICTING SIGNS BEFORE SHIFTING TRAFFIC TO A NEW PATTERN.

2. INSTALL SLOPE PROTECTION AND/OR TEMPORARY SHORING AS REQUIRED.

3. CONSTRUCT ANY DRAINAGE FEATURES NECESSARY TO MAINTAIN POSITIVE FLOW DURING CONSTRUCTION.

4. CONSTRUCT TEMPORARY AGGREGATE BASE COURSE TO PROVIDE ADDITION WIDTH AT STA. 11+48 TO STA. 12+14 LT.

5. CONSTRUCT THE SOUTH END OF THE PROPOSED CULVERT AND TEMPORARY ROADWAY TO THE GREATEST EXTENT POSSIBLE. USE SLOPE PROTECTION AND/OR TEMPORARY SHORING AS NECESSARY BETWEEN THE EXISTING ROAD & PROPOSED CONSTRUCTION.

6. CONSTRUCT TEMPORARY AGGREGATE BASE COURSE REQUIRED FOR STAGE 2 - PHASE 2.

STAGE 2

PHASE 2 - STEP 1

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRIERS/ANCHORED BARRICADES, DRUMS, AND TEMPORARY AGGREGATE BASE COURSE NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE AS DEPICTED ON SHEET TMP-4. ADJUST TEMPORARY SIGNALIZATION TO MAINTAIN A SINGLE LANE OF TRAFFIC ON THE SOUTH END OF THE NEWLY CONSTRUCTED CULVERT FOR BOTH DIRECTIONS OF TRAFFIC WITH ALTERNATING OPERATION. USE APPLICABLE SHEETS FROM NCDOT STD 1101.02. REMOVE ANY CONFLICTING SIGNS BEFORE SHIFTING TRAFFIC TO A NEW PATTERN.

2. CONSTRUCT ANY DRAINAGE FEATURES NECESSARY TO MAINTAIN POSITIVE FLOW DURING CONSTRUCTION.

3. CONSTRUCT THE NORTH END OF THE PROPOSED CULVERT, PROPOSED DRAINAGE FEATURES, PROPOSED GRADING AND PROPOSED ROADWAY TO THE GREATEST EXTENT POSSIBLE. USE SLOPE PROTECTION OR TEMPORARY SHORING AS NECESSARY BETWEEN THE EXISTING ROAD & PROPOSED CONSTRUCTION. FOR STAGE 2 - PHASE 2.

4. REMOVE AND REUSE REMAINING TEMPORARY AGGREGATE BASE COURSE ON FINAL ROADWAY PAVEMENT SECTION.

STAGE 3 PHASE 1

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRIERS/ANCHORED BARRICADES, AND DRUMS NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE. ADJUST TEMPORARY SIGNALIZATION TO MAINTAIN A SINGLE LANE OF TRAFFIC ON THE NORTH END OF THE NEWLY CONSTRUCTED CULVERT FOR BOTH DIRECTIONS OF TRAFFIC WITH ALTERNATING OPERATION. USE APPLICABLE SHEETS FROM NCDOT STD 1101.02.

2. CONSTRUCT ANY REMAINING AGGREGATE BASE COURSE NOT COMPLETED IN PHASE 1 OR PHASE 2 AS DEPICTED ON SHEET TMP-5.

3. REMOVE AND REUSE REMAINING TEMPORARY AGGREGATE BASE COURSE ON FINAL ROADWAY PAVEMENT SECTION.

4. CONSTRUCT PROPOSED DRAINAGE AND PROPOSED GRADING ON THE SOUTH END.

STAGE 3 PHASE 2

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRICADES AND DRUMS NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE. MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION USING APPLICABLE SHEETS FROM NCDOT STD 1101.02, USING FLAGGER OPERATIONS AS NECESSARY.

2. SEED AND MULCH ALL AREAS DISTURBED AS A RESULT OF THIS CONSTRUCTION.

3. REMOVE ALL EQUIPMENT, TEMPORARY TRAFFIC CONTROL MEASURES, AND ROAD WORK SIGNAGE AND OPEN THE PROJECT TO ALL TRAFFIC.

APPROVED

DATE: 11/2019

SEAL

SEAL

PROFESSIONAL ENGINEER

15424

WILLIAM C. JOHNSON

DIVISION OF HIGHWAYS

STATE OF NORTH CAROLINA

DEPARTMENT OF TRANSPORTATION

WORK ZONE TRAFFIC CONTROL

TRANSPORTATION OPERATIONS PLAN

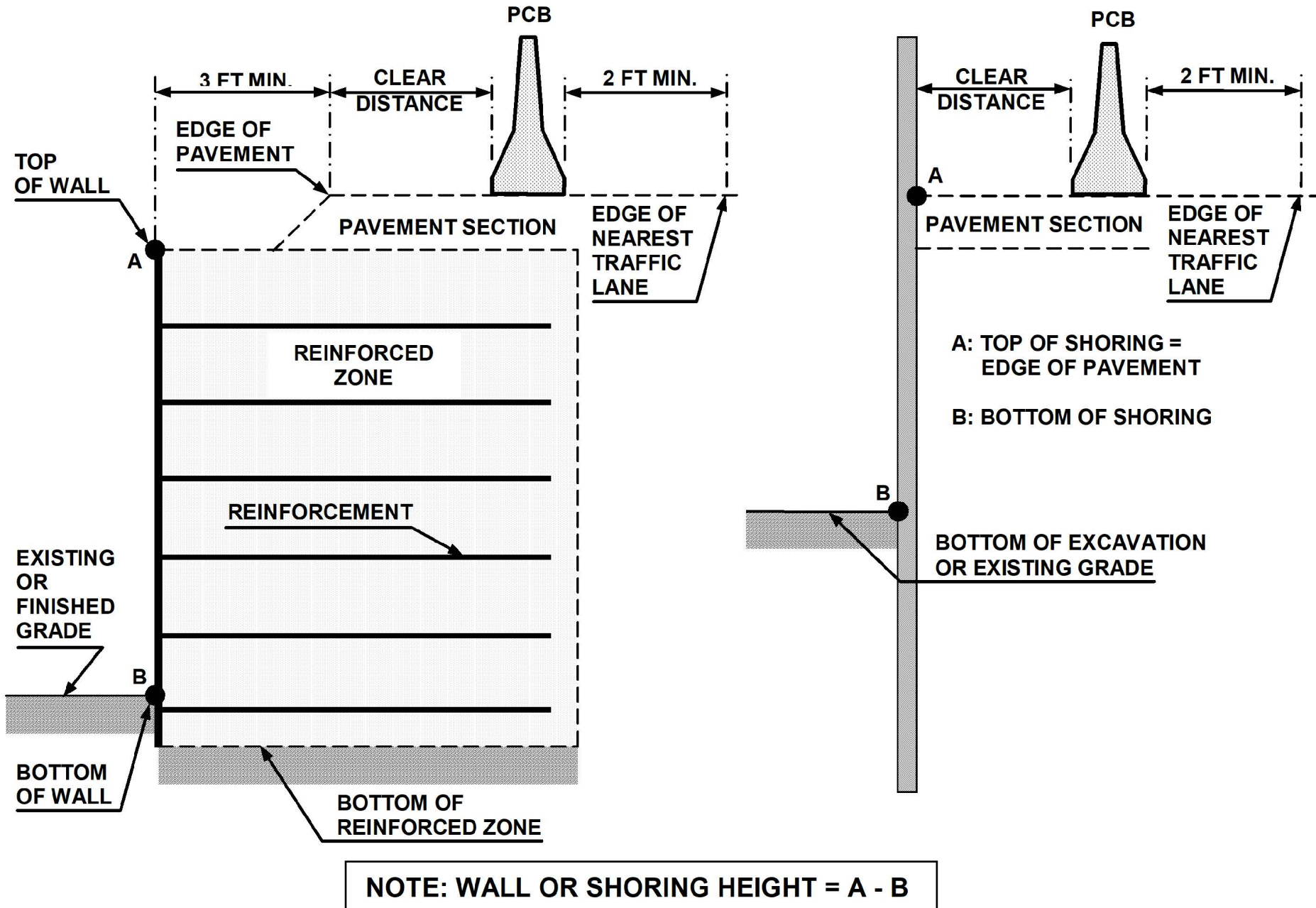


FIGURE A

NOTES

- 1- REFER TO THE TRAFFIC CONTROL PLANS FOR TEMPORARY SHORING LOCATIONS AND NOTES.
- 2- REFER TO THE "TEMPORARY SHORING" PROJECT SPECIAL PROVISION FOR INFORMATION ABOUT TEMPORARY SHORING AND PORTABLE CONCRETE BARRIER (PCB).
- 3- PCB IS REQUIRED IF TEMPORARY SHORING IS LOCATED WITHIN THE CLEAR ZONE IN ACCORDANCE WITH THE AASHTO ROADSIDE DESIGN GUIDE. DO NOT PLACE BARRIER DIRECTLY ON ANY SURFACE OTHER THAN ASPHALT OR CONCRETE. (CONTACT NCDOT PAVEMENT MANAGEMENT UNIT FOR APPLICABLE PAVEMENT DESIGN).
- 4- BASED ON THE CLEAR DISTANCE, OFFSET, DESIGN SPEED AND PAVEMENT TYPE, CHOOSE AN UNANCHORED OR ANCHORED PCB FROM THE TABLE SHOWN IN FIGURE B. CLEAR DISTANCE IS DEFINED AS SHOWN IN FIGURE A AND OFFSET IS DEFINED AS SHOWN IN FIGURE B.
- 5- AT THE CONTRACTOR'S OPTION OR IF THE MINIMUM REQUIRED CLEAR DISTANCE IS NOT AVAILABLE, SET PCB NEXT TO AND UP AGAINST THE TRAFFIC SIDE OF THE TEMPORARY SHORING EXCEPT FOR BARRIER ABOVE TEMPORARY WALLS. PCB WITH THE MINIMUM REQUIRED CLEAR DISTANCE IS REQUIRED ABOVE TEMPORARY WALLS.
- 6- USE NCDOT PORTABLE CONCRETE BARRIER (PCB) IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1170.01 AND SECTION 1170 OF THE STANDARD SPECIFICATIONS.
- 7- PCB REQUIREMENTS FOR TEMPORARY WALLS APPLY TO TEMPORARY MECHANICALLY STABILIZED EARTH (MSE) WALLS AND TEMPORARY SOIL NAIL WALLS.
- 8- SET PCB WITH A MINIMUM HORIZONTAL DISTANCE OF 2 FT BETWEEN THE FRONT FACE OF THE BARRIER AND THE EDGE OF THE NEAREST TRAFFIC LANE AS SHOWN IN FIGURE A UNLESS OTHERWISE SHOWN IN THE PLANS AND OR AS APPROVED BY THE ENGINEER.
- 9- FOR PCB ABOVE AND BEHIND TEMPORARY WALLS, PROVIDE A MINIMUM DISTANCE OF 3 FT BETWEEN THE EDGE OF PAVEMENT AND THE WALL FACE AS SHOWN IN FIGURE A. IF THESE MINIMUM REQUIRED DISTANCES ARE NOT AVAILABLE, CONTACT THE ENGINEER.
- 10- TABLE SHOWN IN FIGURE B IS BASED ON NCDOT RESEARCH PROJECT NO. 2005-010 WITH VEHICLE TYPE USED FOR NCHRP 350 CRASH TESTS. BARRIER DEFLECTIONS AND RESULTING MINIMUM REQUIRED CLEAR DISTANCES MIGHT VARY SIGNIFICANTLY FOR LARGER HEAVIER VEHICLES, RUNS OF BARRIER LESS THAN 200 FT IN LENGTH AND WET OR DRY PAVEMENT.
- 11- SHORING SHALL NOT BE PLACED IN THE STREAM.

PROJECT REFERENCE NO.	SHEET NO.
B-6020	TMP-2
POLK COUNTY	CULVERT #740144
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	

MINIMUM REQUIRED CLEAR DISTANCE, inches								
Barrier Type	Pavement Type	Offset * ft	Design Speed, mph					
			<30	31-40	41-50	51-60	61-70	71-80
Unanchored PCB	Asphalt	<8	24	26	29	32	36	40
		8-14	26	28	31	35	38	42
		14-20	27	29	34	36	39	43
		20-26	28	31	35	38	40	44
		26-32	29	32	36	39	42	45
		32-38	30	34	38	41	43	46
		38-44	31	34	41	43	45	48
		44-50	31	35	41	43	46	49
		50-56	32	36	42	44	47	50
		>56	32	36	42	45	47	51
	Concrete	<8	17	18	21	22	25	26
		8-14	19	20	23	25	26	29
		14-20	22	22	24	26	28	31
		20-26	23	24	26	27	30	34
		26-32	24	25	27	28	32	35
		32-38	24	26	27	30	33	36
		38-44	25	26	28	30	34	37
		44-50	26	26	28	32	35	37
		50-56	26	26	28	32	35	38
		>56	26	27	29	32	36	38
Anchored PCB	Asphalt	All Offsets	24 for All Design Speeds					
Anchored PCB	Concrete (including bridge approach slabs)	All Offsets	12 for All Design Speeds					

* See Figure Below

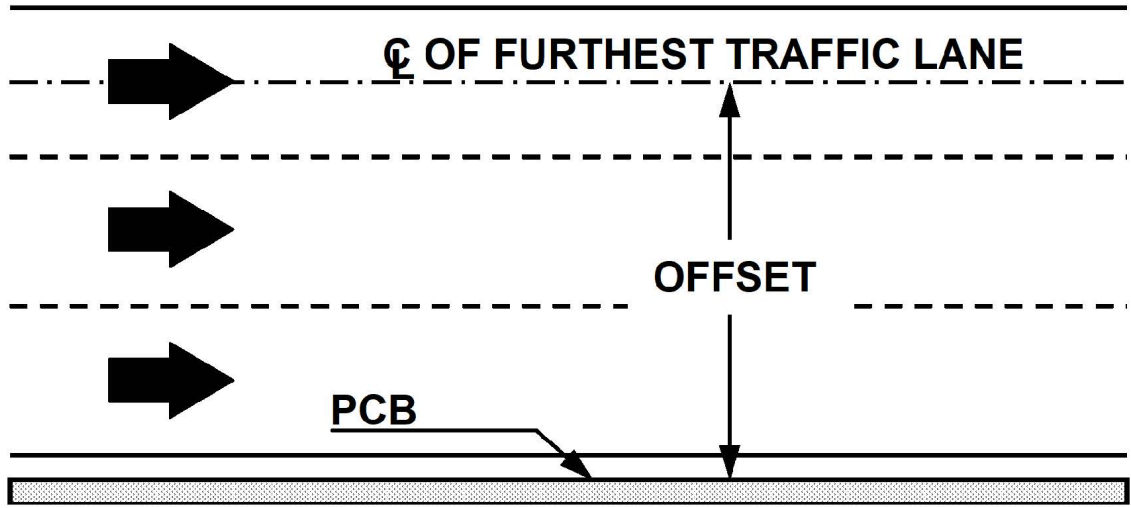
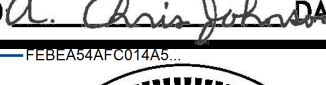
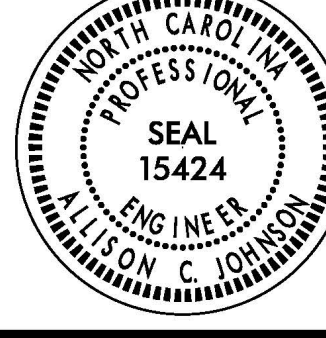



FIGURE B

APPROVED  DATE: 3/19/2019
FEE/BACK OFFICE

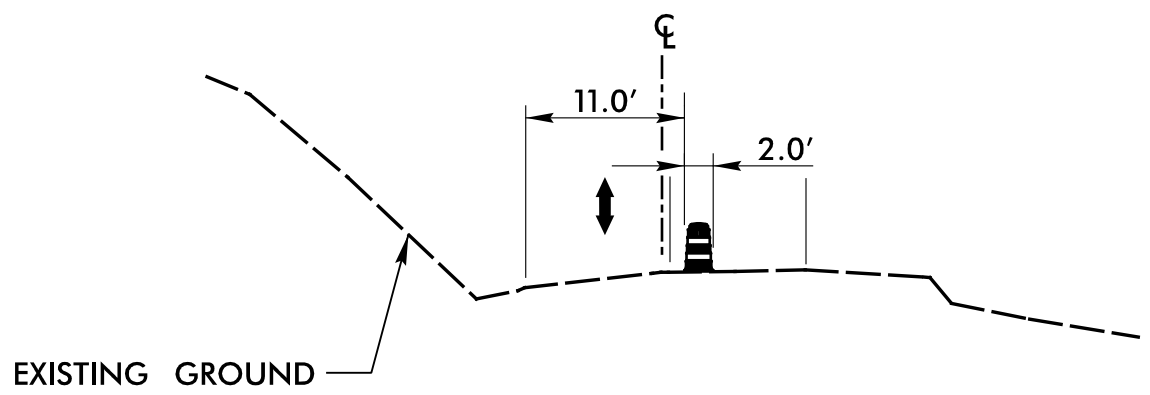
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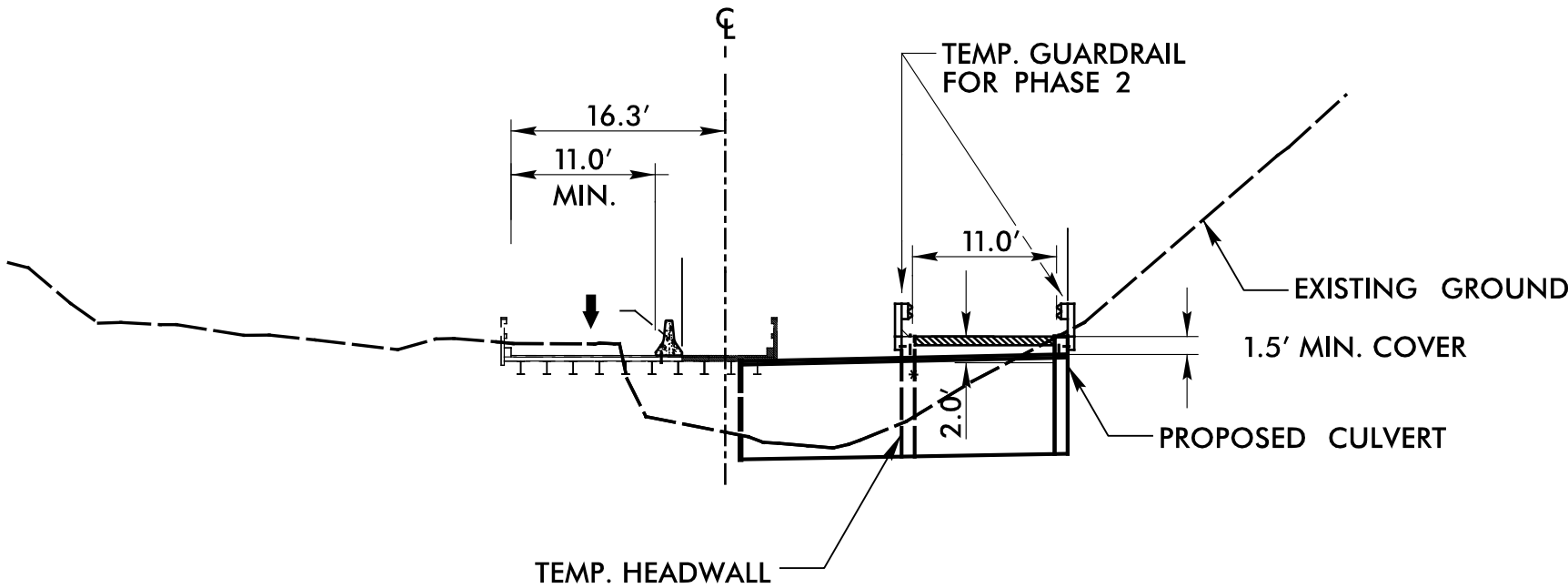
PORTABLE CONCRETE
BARRIER AT
TEMPORARY SHORING
LOCATIONS

8/17/99

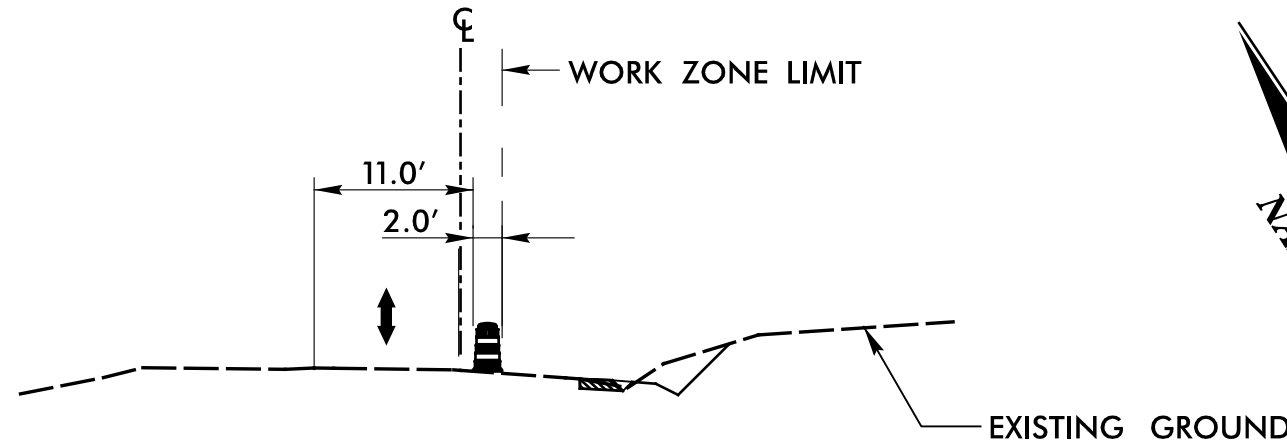
PROJECT REFERENCE NO.	SHEET NO.
B-6020	TMP-3
POLK COUNTY	CULVERT #740144
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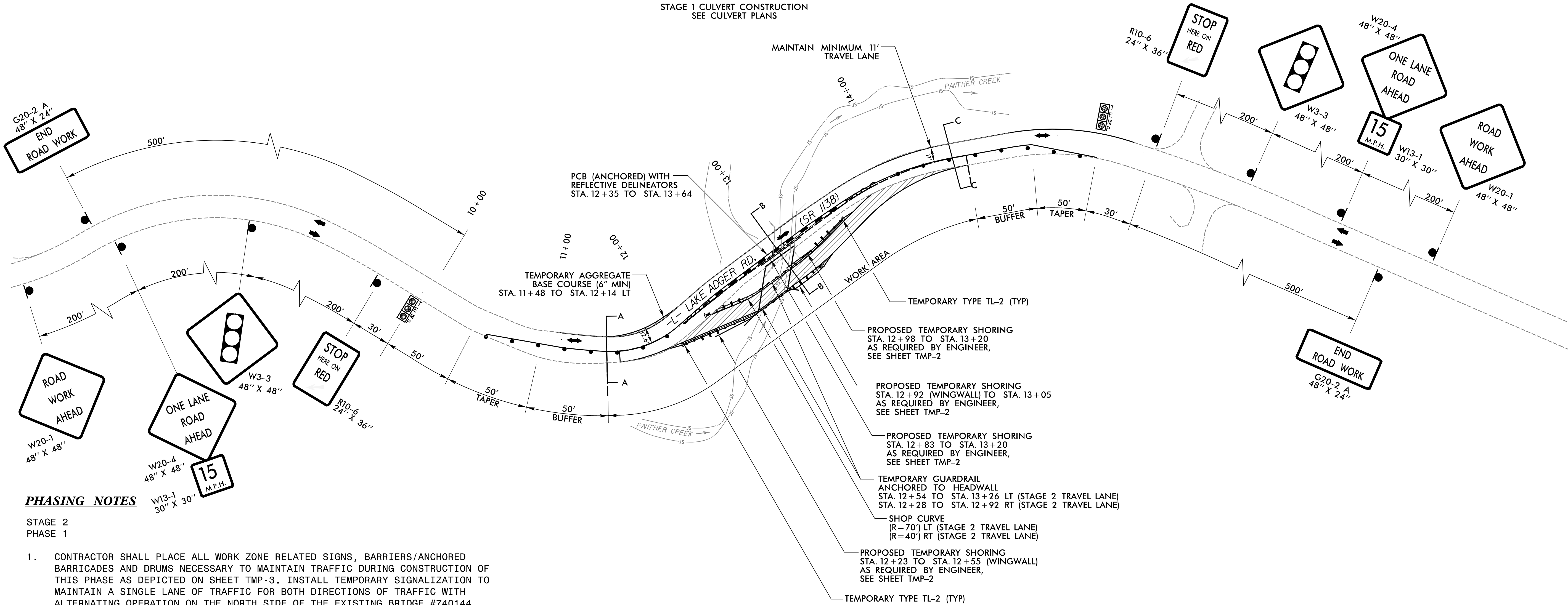
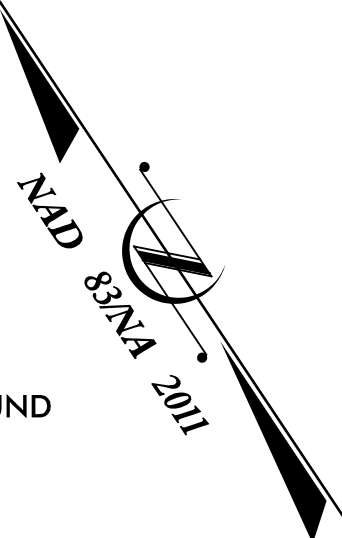
SECTION A-A



SECTION B-B
STAGE 1 CULVERT CONSTRUCTION
SEE CULVERT PLANS



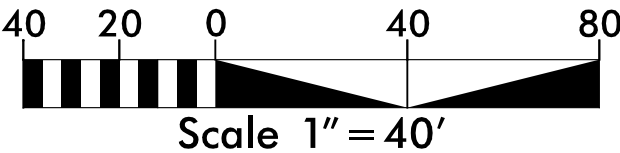
SECTION C-C



PHASING NOTES

STAGE 2
PHASE 1

- CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRIERS/ANCHORED BARRICADES AND DRUMS NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE AS DEPICTED ON SHEET TMP-3. INSTALL TEMPORARY SIGNALIZATION TO MAINTAIN A SINGLE LANE OF TRAFFIC FOR BOTH DIRECTIONS OF TRAFFIC WITH ALTERNATING OPERATION ON THE NORTH SIDE OF THE EXISTING BRIDGE #740144. USE APPLICABLE SHEETS FROM NCDOT STD 1101.02. REMOVE ANY CONFLICTING SIGNS BEFORE SHIFTING TRAFFIC TO A NEW PATTERN.
- INSTALL SLOPE PROTECTION AND/OR TEMPORARY SHORING AS REQUIRED.
- CONSTRUCT ANY DRAINAGE FEATURES NECESSARY TO MAINTAIN POSITIVE FLOW DURING CONSTRUCTION.
- CONSTRUCT TEMPORARY AGGREGATE BASE COURSE TO PROVIDE ADDITION WIDTH AT STA. 11+48 TO STA. 12+14 LT.
- CONSTRUCT THE SOUTH END OF THE PROPOSED CULVERT AND TEMPORARY ROADWAY TO THE GREATEST EXTENT POSSIBLE. USE SLOPE PROTECTION AND/OR TEMPORARY SHORING AS NECESSARY BETWEEN THE EXISTING ROAD & PROPOSED CONSTRUCTION.
- CONSTRUCT TEMPORARY AGGREGATE BASE COURSE REQUIRED FOR STAGE 2 - PHASE 2.



APPROVED: *Chris Johnson* DATE: 8/17/2019

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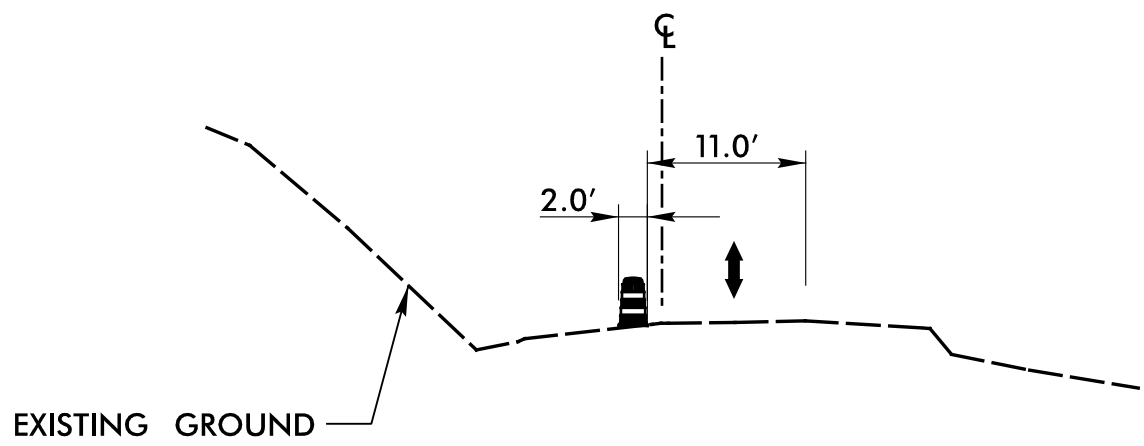
PROFESSIONAL ENGINEER
15424
WILLIAM C. JOHNSON

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

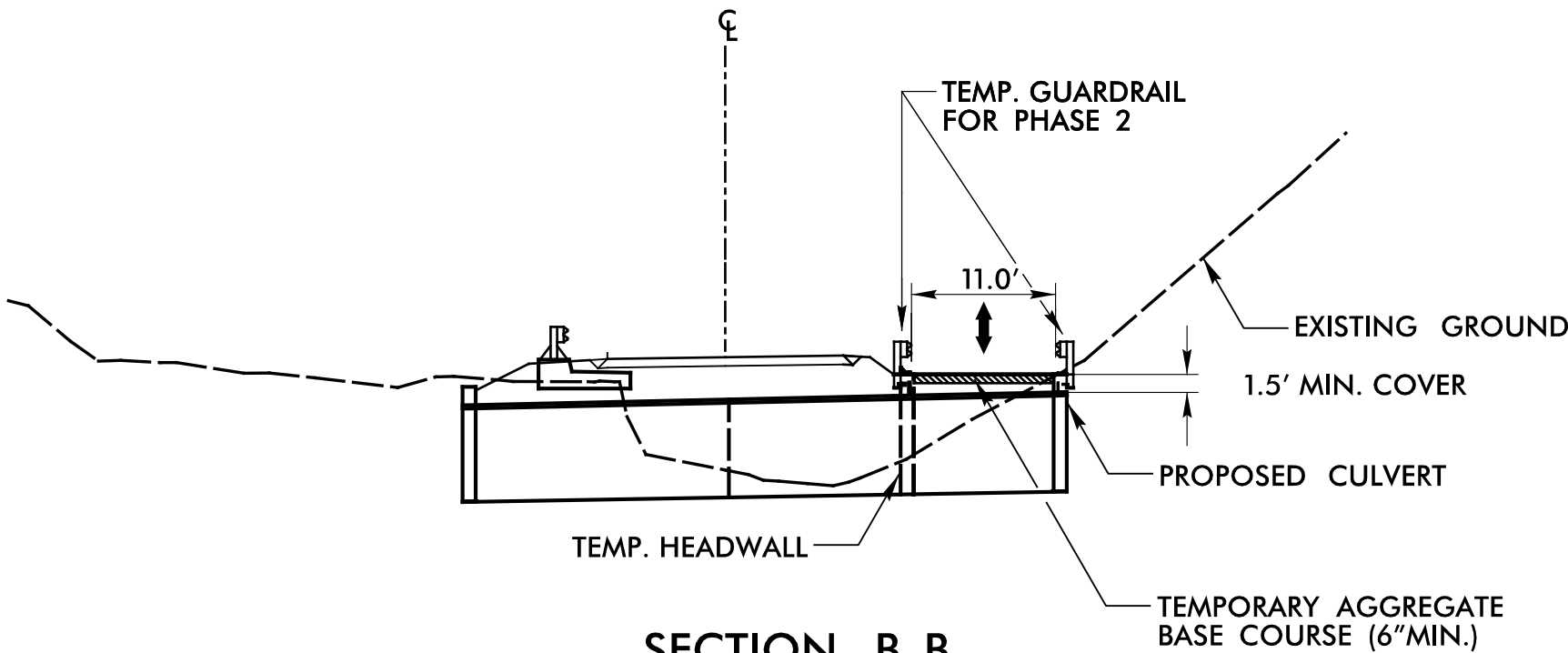
TRAFFIC MANAGEMENT PLAN
PHASE 1

8/17/99

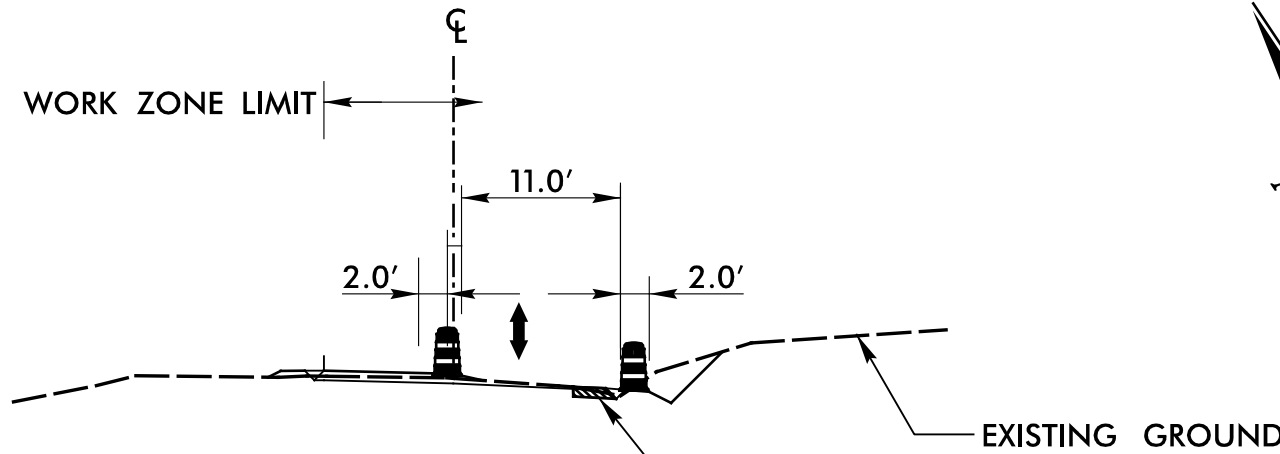
PROJECT REFERENCE NO.	SHEET NO.
B-6020	TMP-4
POLK COUNTY	CULVERT #740144
DOCUMENT NOT CONSIDERED FINAL UNLESS ALL SIGNATURES COMPLETED	



SECTION A-A

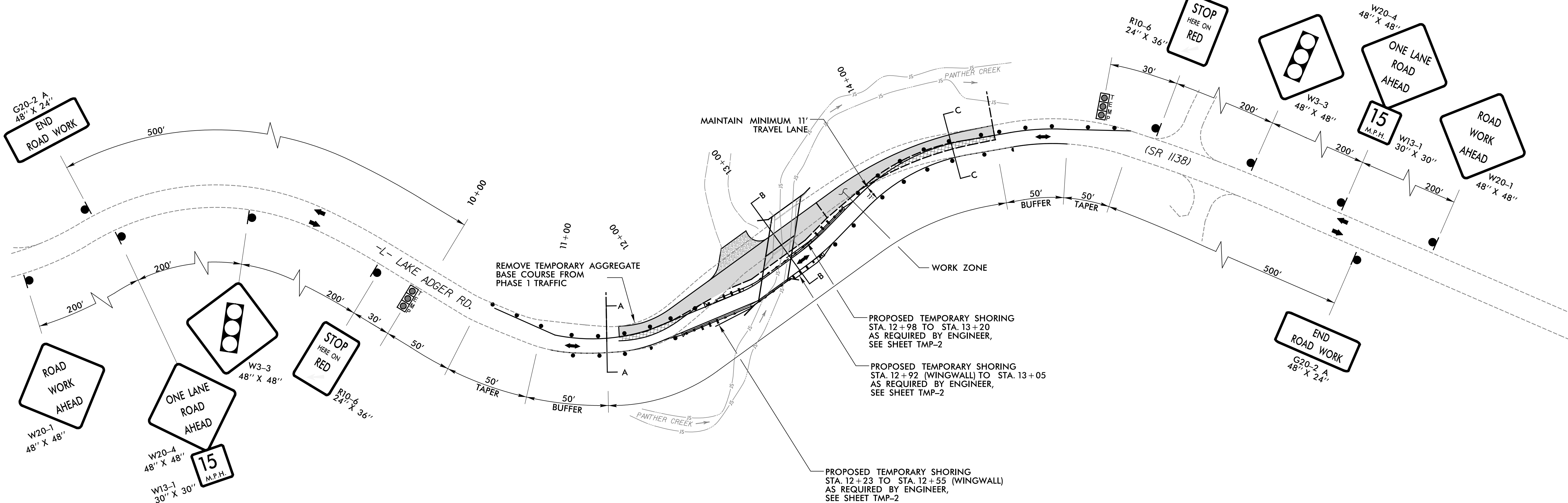
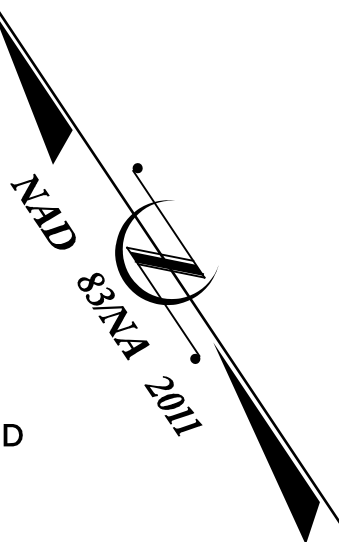


SECTION B-B
STAGE 2 CULVERT CONSTRUCTION
SEE CULVERT PLANS



SECTION C-C

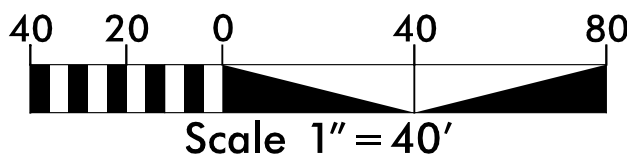
NOTE:
AGGREGATE BASE COURSE TO BE USED TO
CONSTRUCT FINAL ROADWAY PAVEMENT SECTION



PHASING NOTES

STAGE 2
PHASE 2 - STEP 1

- CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRIERS/ANCHORED BARRICADES, DRUMS, AND TEMPORARY AGGREGATE BASE COURSE NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE AS DEPICTED ON SHEET TMP-4. ADJUST TEMPORARY SIGNALIZATION TO MAINTAIN A SINGLE LANE OF TRAFFIC ON THE SOUTH END OF THE NEWLY CONSTRUCTED CULVERT FOR BOTH DIRECTIONS OF TRAFFIC WITH ALTERNATING OPERATION. USE APPLICABLE SHEETS FROM NCDOT STD 1101.02. REMOVE ANY CONFLICTING SIGNS BEFORE SHIFTING TRAFFIC TO A NEW PATTERN.
- CONSTRUCT ANY DRAINAGE FEATURES NECESSARY TO MAINTAIN POSITIVE FLOW DURING CONSTRUCTION.
- CONSTRUCT THE NORTH END OF THE PROPOSED CULVERT, PROPOSED DRAINAGE FEATURES, PROPOSED GRADING AND PROPOSED ROADWAY TO THE GREATEST EXTENT POSSIBLE. USE SLOPE PROTECTION OR TEMPORARY SHORING AS NECESSARY BETWEEN THE EXISTING ROAD & PROPOSED CONSTRUCTION. FOR STAGE 2 - PHASE 2.
- REMOVE AND REUSE REMAINING TEMPORARY AGGREGATE BASE COURSE ON FINAL ROADWAY PAVEMENT SECTION.




APPROVED: *Chris Johnson* 8/11/2019

SEAL

PROFESSIONAL ENGINEER
WILLIAM C. JOHNSON
SEAL 15424

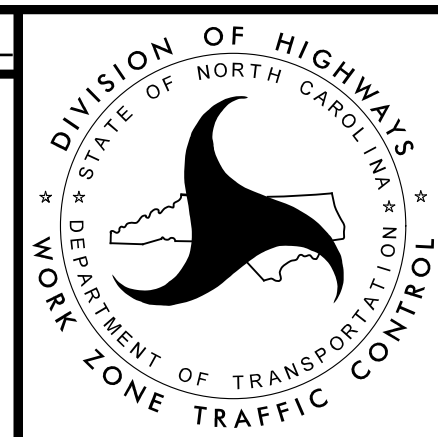
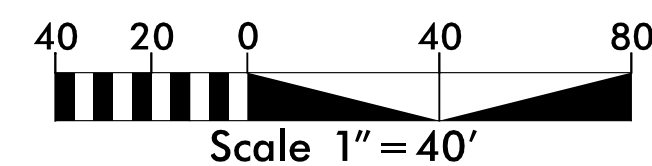
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA
DEPARTMENT OF TRANSPORTATION
WORK ZONE TRAFFIC CONTROL

TRAFFIC MANAGEMENT PLAN
PHASE 2

The logo for NAD 83 NA 2011 is located in the bottom right corner. It features a stylized graphic of a surveying instrument, possibly a theodolite or a similar optical device, with a central circle and a horizontal line. The text "NAD 83 NA 2011" is written in a bold, sans-serif font, oriented diagonally across the graphic.

STAGE 3 PHASE 2

1. CONTRACTOR SHALL PLACE ALL WORK ZONE RELATED SIGNS, BARRICADES AND DRUMS NECESSARY TO MAINTAIN TRAFFIC DURING CONSTRUCTION OF THIS PHASE. MAINTAIN ONE LANE OF TRAFFIC IN EACH DIRECTION USING APPLICABLE SHEETS FROM NCDOT STD 1101.02, USING FLAGGER OPERATIONS AS NECESSARY.
2. SEED AND MULCH ALL AREAS DISTURBED AS A RESULT OF THIS CONSTRUCTION.
3. REMOVE ALL EQUIPMENT, TEMPORARY TRAFFIC CONTROL MEASURES, AND ROAD WORK SIGNAGE AND OPEN THE PROJECT TO ALL TRAFFIC.



TRAFFIC MANAGEMENT PLAN

PHASE 3

09.08/2019

PROJECT: B-6020

CONTRACT: DN00282

EROSION AND SEDIMENT CONTROL MEASURES

Std. #	Description	Symbol
1630.03	Temporary Silt Ditch.....	
1630.05	Temporary Diversion.....	
1605.01	Temporary Silt Fence.....	
1606.01	Special Sediment Control Fence.....	
1622.01	Temporary Berms and Slope Drains.....	
1630.02	Silt Basin Type B.....	
1633.01	Temporary Rock Silt Check Type-A.....	
	Temporary Rock Silt Check Type-A with Matting and Polyacrylamide (PAM).....	
1633.02	Temporary Rock Silt Check Type-B.....	
	Wattle / Coir Fiber Wattle.....	
	Wattle / Coir Fiber Wattle with Polyacrylamide (PAM).....	
1634.01	Temporary Rock Sediment Dam Type-A.....	
1634.02	Temporary Rock Sediment Dam Type-B.....	
1635.01	Rock Pipe Inlet Sediment Trap Type-A.....	
1635.02	Rock Pipe Inlet Sediment Trap Type-B.....	
1630.04	Stilling Basin.....	
1630.06	Special Stilling Basin.....	
	Rock Inlet Sediment Trap:	
1632.01	Type A.....	
1632.02	Type B.....	
1632.03	Type C.....	
	Skimmer Basin.....	
	Tiered Skimmer Basin.....	
	Infiltration Basin.....	

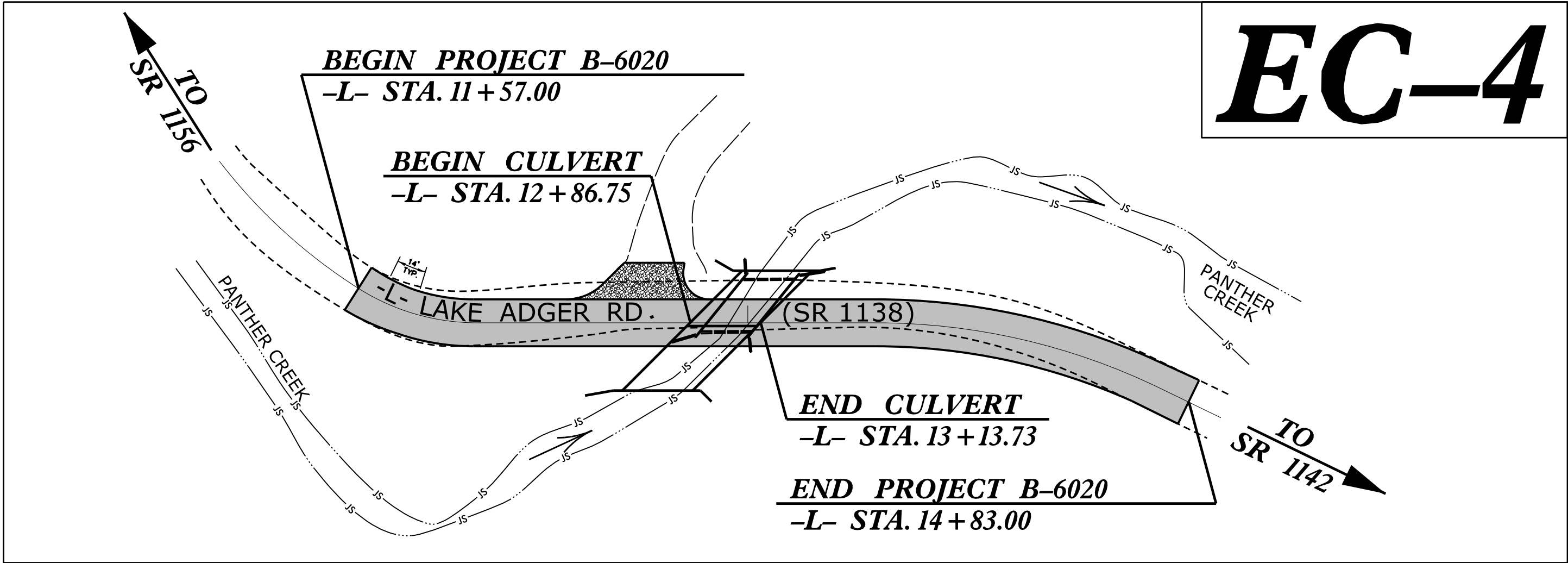
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

PLAN FOR PROPOSED
HIGHWAY EROSION CONTROL

POLK COUNTY

LOCATION: CULVERT #740144 OVER PANTHER CREEK
ON SR 1138 (LAKE ADGER ROAD)

TYPE OF WORK: PAVING, GRADING, DRAINAGE & CULVERT

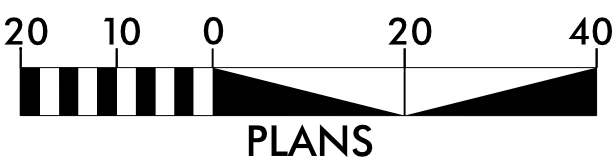


EC-4

NCDOT CONTACT:
HIGHWAY DIVISION 14 BRIDGE MANAGER
ADAM DOCKERY, P.E.
(828) 488-0902

THERE IS NO CONTROL OF ACCESS ON THIS PROJECT.

GRAPHIC SCALES



ROADSIDE ENVIRONMENTAL UNIT
DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

THESE EROSION AND SEDIMENT CONTROL PLANS COMPLY
WITH THE REGULATIONS SET FORTH BY THE
NCG-010000 GENERAL CONSTRUCTION PERMIT EFFECTIVE DECEMBER 20, 2018
ISSUED BY THE NORTH CAROLINA DEPARTMENT OF ENVIRONMENT AND
NATURAL RESOURCES DIVISION OF WATER QUALITY.



M A Engineering
Consultants, Inc. 598 East Chatham Street - Suite 137
Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

2018 STANDARD SPECIFICATIONS

RIGHT OF WAY DATE:
APRIL 2, 2015

LETTING DATE:
MAY 14, 2019

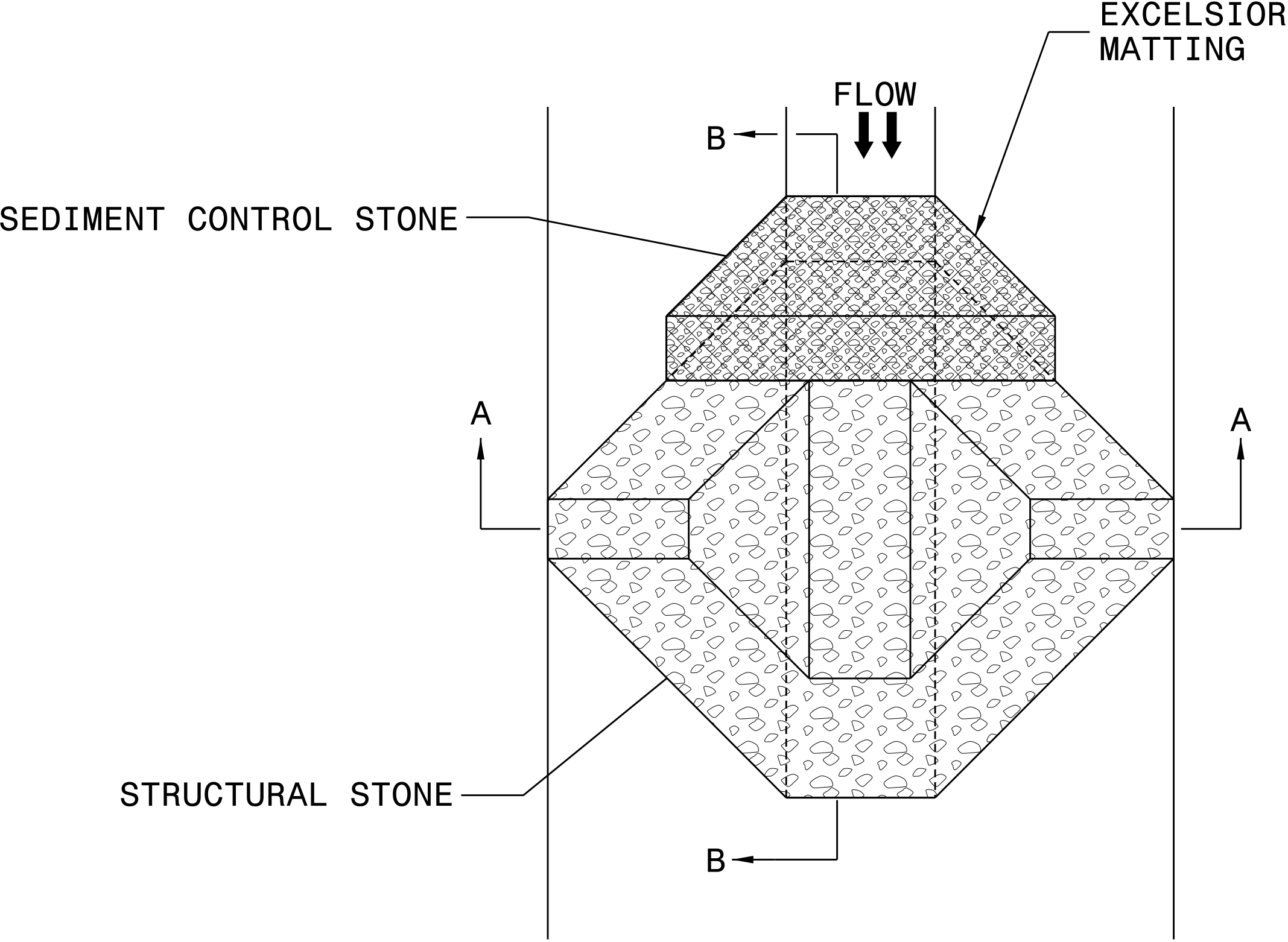
PAUL CAMERON, PE
PROJECT ENGINEER
LEVEL III CERTIFICATION
NUMBER 3624

Roadway Standard Drawings

The following roadway english standards as appear in "Roadway Standard Drawings"- Roadway Design Unit - N. C. Department of Transportation - Raleigh, N. C., dated January 2018 and the latest revision thereto are applicable to this project and by reference hereby are considered a part of these plans.

1604.01	Railroad Erosion Control Detail	1632.01	Rock Inlet Sediment Trap Type A
1605.01	Temporary Silt Fence	1632.02	Rock Inlet Sediment Trap Type B
1606.01	Special Sediment Control Fence	1632.03	Rock Inlet Sediment Trap Type C
1607.01	Gravel Construction Entrance	1633.01	Temporary Rock Silt Check Type A
1622.01	Temporary Berms and Slope Drains	1633.02	Temporary Rock Silt Check Type B
1630.01	Riser Basin	1634.01	Temporary Rock Sediment Dam Type A
1630.02	Silt Basin Type B	1634.02	Temporary Rock Sediment Dam Type B
1630.03	Temporary Silt Ditch	1635.01	Rock Pipe Inlet Sediment Trap Type A
1630.04	Stilling Basin	1635.02	Rock Pipe Inlet Sediment Trap Type B
1630.05	Temporary Diversion	1640.01	Coir Fiber Baffle
1630.06	Special Stilling Basin	1645.01	Temporary Stream Crossing
1631.01	Matting Installation		

TEMPORARY ROCK SILT CHECK TYPE 'A' WITH EXCELSIOR MATTING AND POLYACRYLAMIDE (PAM)



PLAN

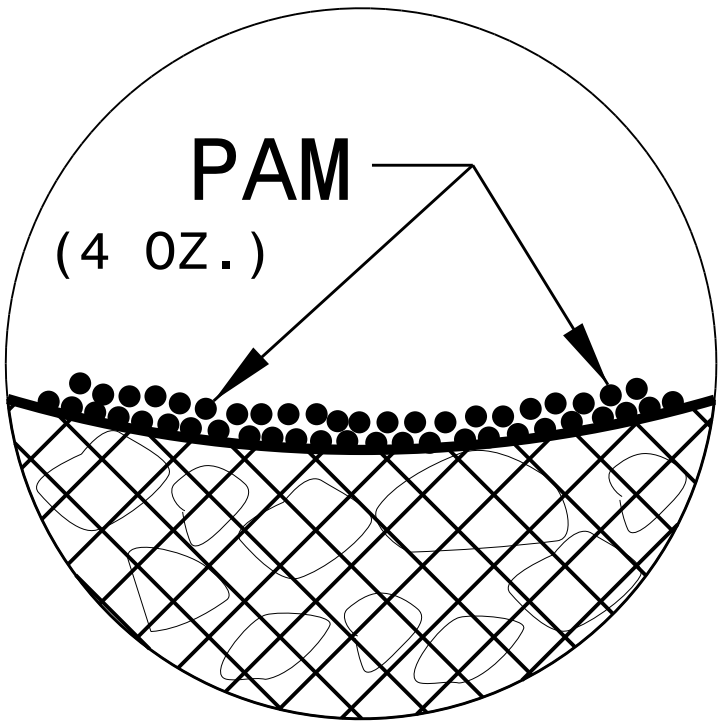
NOTES:

INSTALL TEMPORARY ROCK SILT CHECK TYPE A IN ACCORDANCE WITH ROADWAY STANDARD DRAWING NO. 1633.01.

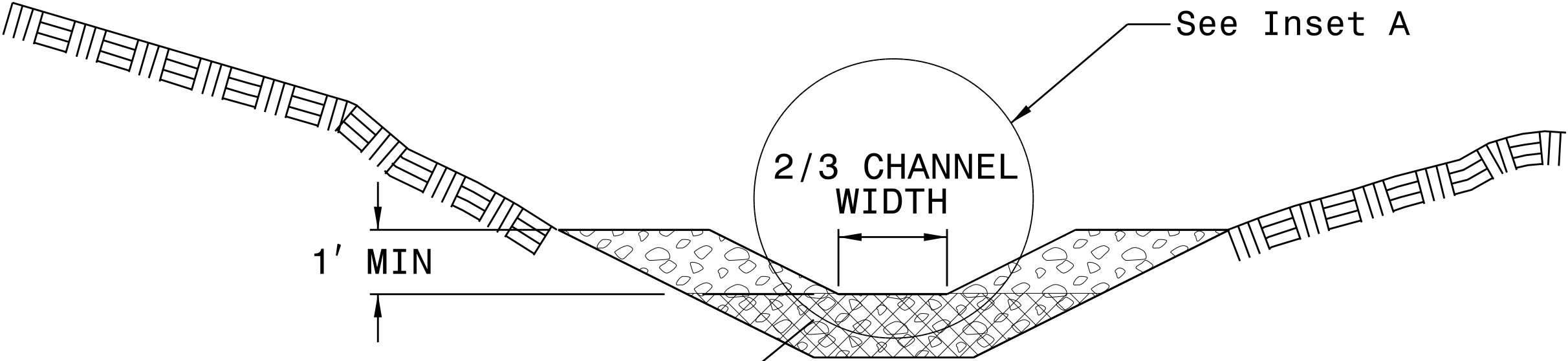
USE EXCELSIOR FOR MATTING MATERIAL AND ANCHOR MATTING SECTION AT TOP AND BOTTOM WITH CLASS B STONE.

PRIOR TO POLYACRYLAMIDE (PAM) APPLICATION, OBTAIN A SOIL SAMPLE FROM PROJECT LOCATION, AND FROM OFFSITE MATERIAL, AND ANALYZE FOR APPROPRIATE PAM FLOCCULANT TO BE APPLIED TO EACH ROCK SILT CHECK.

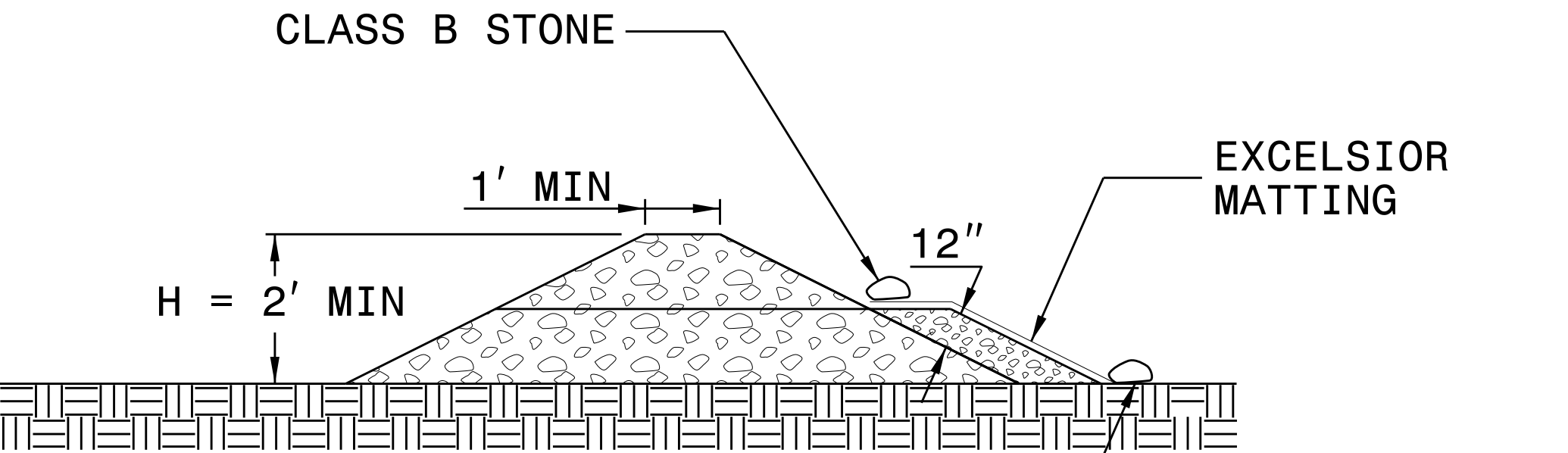
INITIALLY APPLY 4 OUNCES OF POLYACRYLAMIDE (PAM) TO TOP OF MATTING SECTION AND AFTER EVERY RAINFALL EVENT THAT EQUALS OR EXCEEDS 0.50 INCHES.



INSET A



SECTION A-A



SECTION B-B

NOT TO SCALE

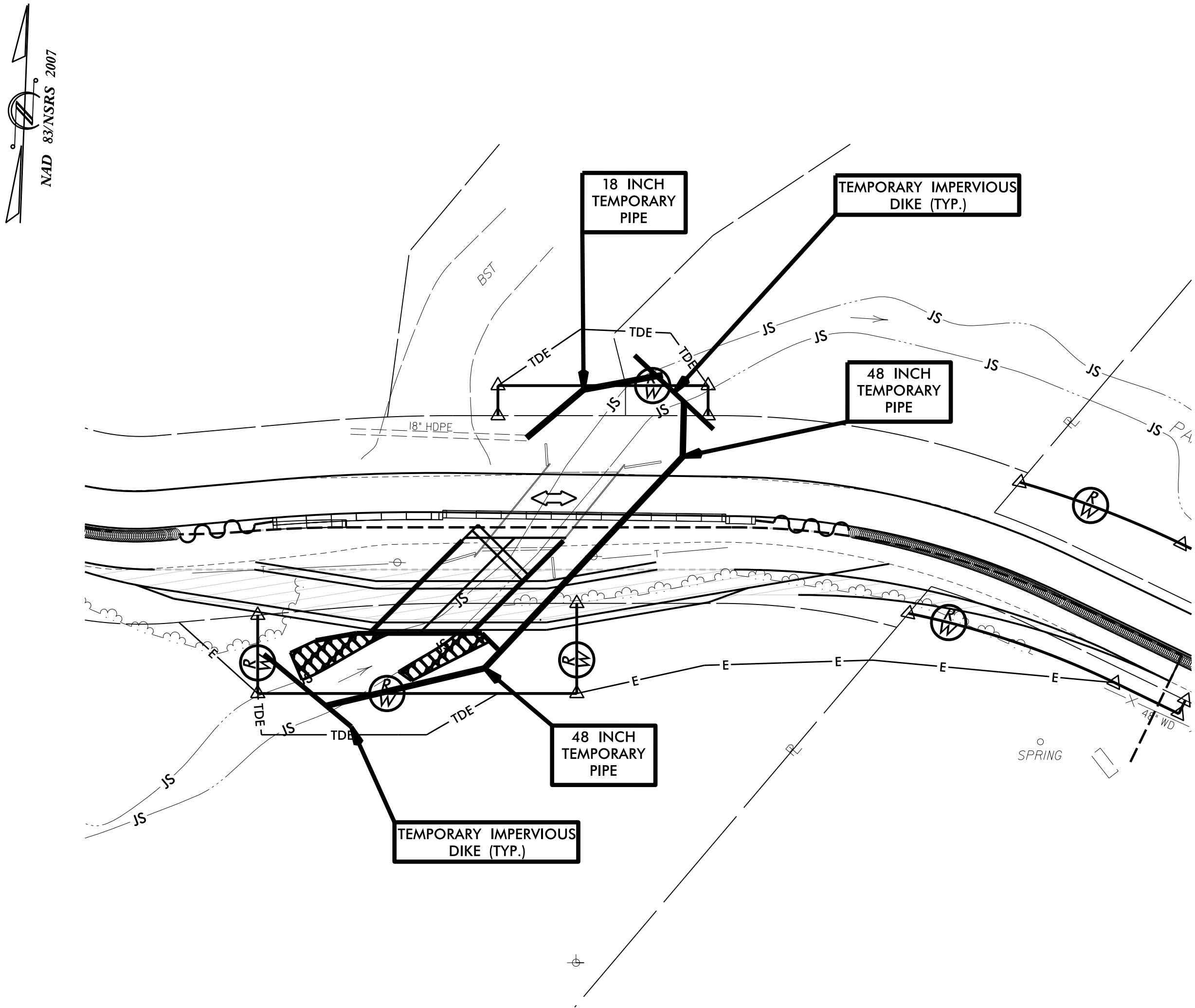
8/17/99

CULVERT CONSTRUCTION SEQUENCE STA. 13 + 00 –L–

PROJECT REFERENCE NO.	SHEET NO.
B-6020	EC-2B
RW SHEET NO.	
ROADWAY DESIGN ENGINEER	HYDRAULICS ENGINEER

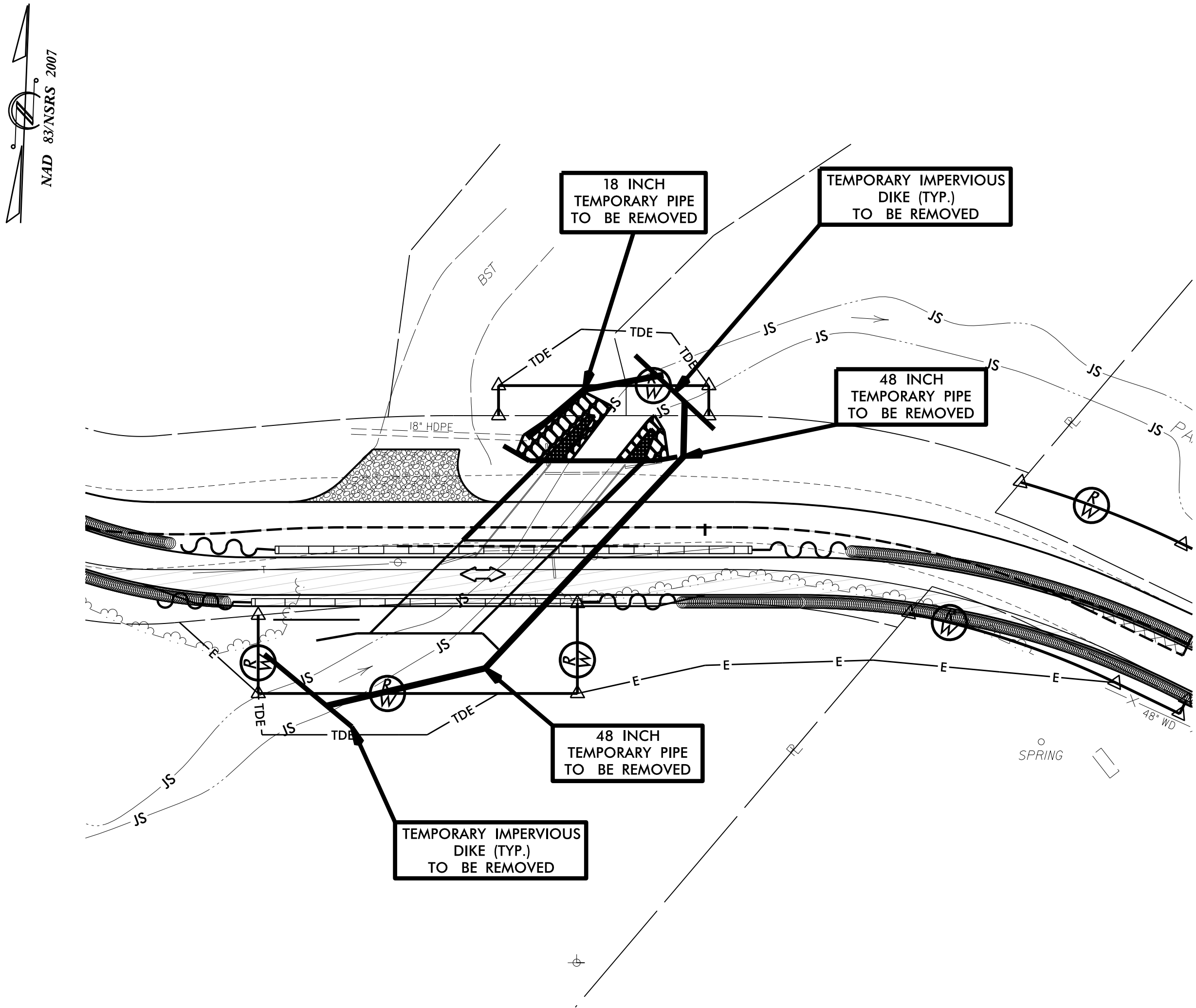
PHASE I

1. PLACE SPECIAL STILLING BASIN IN DESIRED LOCATION.
2. CONSTRUCT TCP STAGE 1 APPROACHES AND INSTALL STAGE 1 TRAFFIC CONTROL DEVICES (SEE TMP-3).
3. INSTALL IMPERVIOUS DIKES.
4. INSTALL TEMPORARY 48" PIPE AND ATTACH TEMPORARY 18" PIPE TO EX. 18" HDPE DRIVEWAY PIPE ACCORDING TO NCDOT'S BEST MANAGEMENT PRACTICES FOR CONSTRUCTION AND MAINTENANCE ACTIVITIES' MANUAL. DISCHARGE BOTH PIPES THROUGH DOWNSTREAM IMPERVIOUS DIKES.
5. PUMP ANY IMPOUNDED FLOW THROUGH SPECIAL STILLING BASIN.
6. REMOVE EXISTING BRIDGE AS NEEDED DURING STAGE 1 CONSTRUCTION.
7. INSTALL PORTION OF ALUMINUM BOX CULVERT (ABC) FOR PHASE 1 AND CONSTRUCT UPSTREAM CULVERT BENCHES.



PHASE II

1. SWITCH TO STAGE 2 OF TRAFFIC CONTROL PLAN (SEE TMP-4).
2. INSTALL STAGE 2 PORTION OF ABC AND CONSTRUCT THE DOWNSTREAM CULVERT BENCHES.
3. CONSTRUCT STAGE 2 ROADWAY APPROACHES AND TRANSITION TO STAGE 3 (TMP-5).
4. COMPLETE STAGE 3 AND PHASE TO PERMENANT ALIGNMENTS WHILE REMOVING PIPES, TEMPORARY DIKES, AND SPECIAL STILLING BASIN.



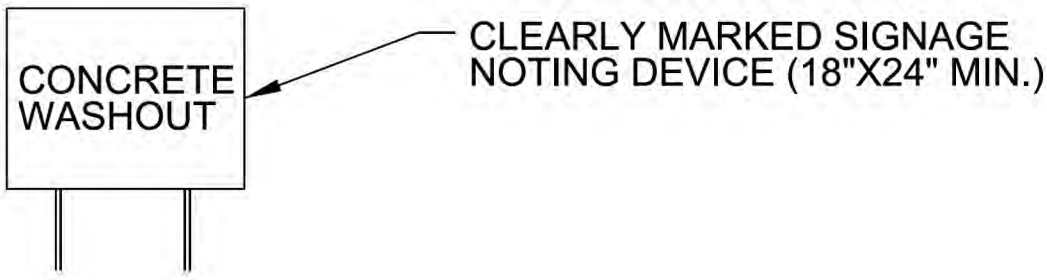
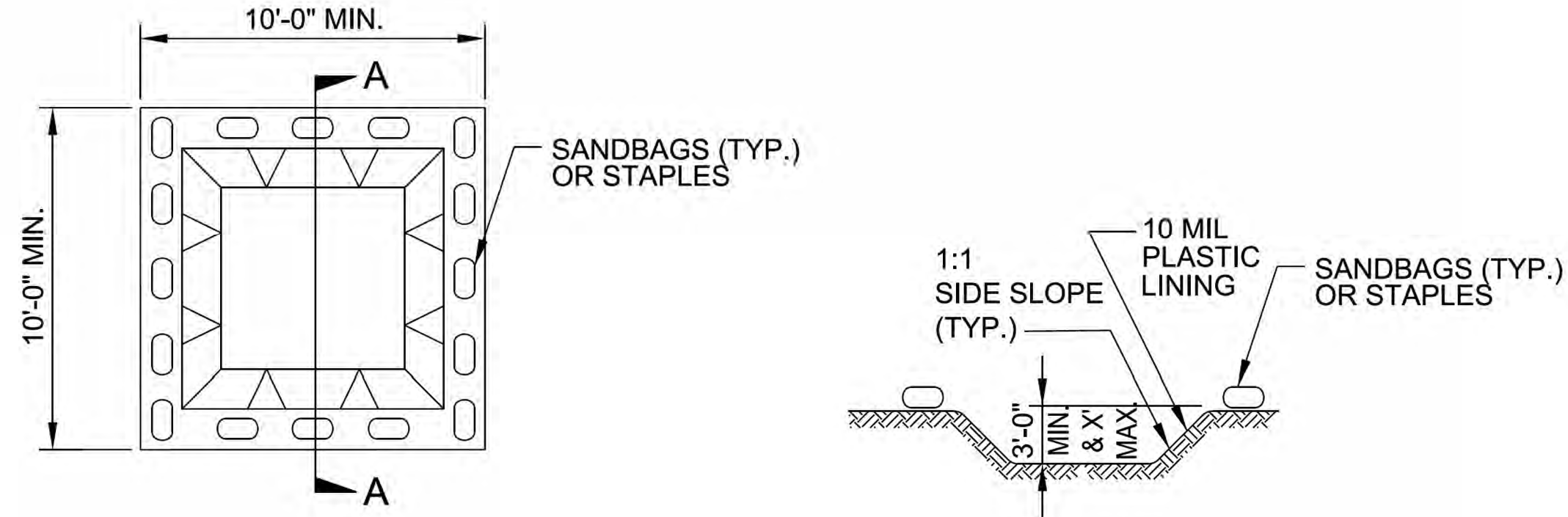
B/17/99

REVISIONS

3/19/2019
R:\Projects\EC\B740125_EC_EC2C.dgn
B-2019

PROJECT REFERENCE NO.	SHEET NO.
B-6020	EC-2C
POLK COUNTY	CULVERT #740144

ONSITE CONCRETE WASHOUT
STRUCTURE WITH LINER

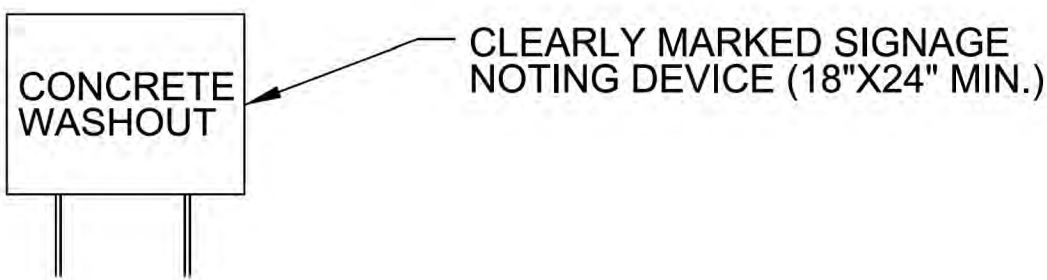
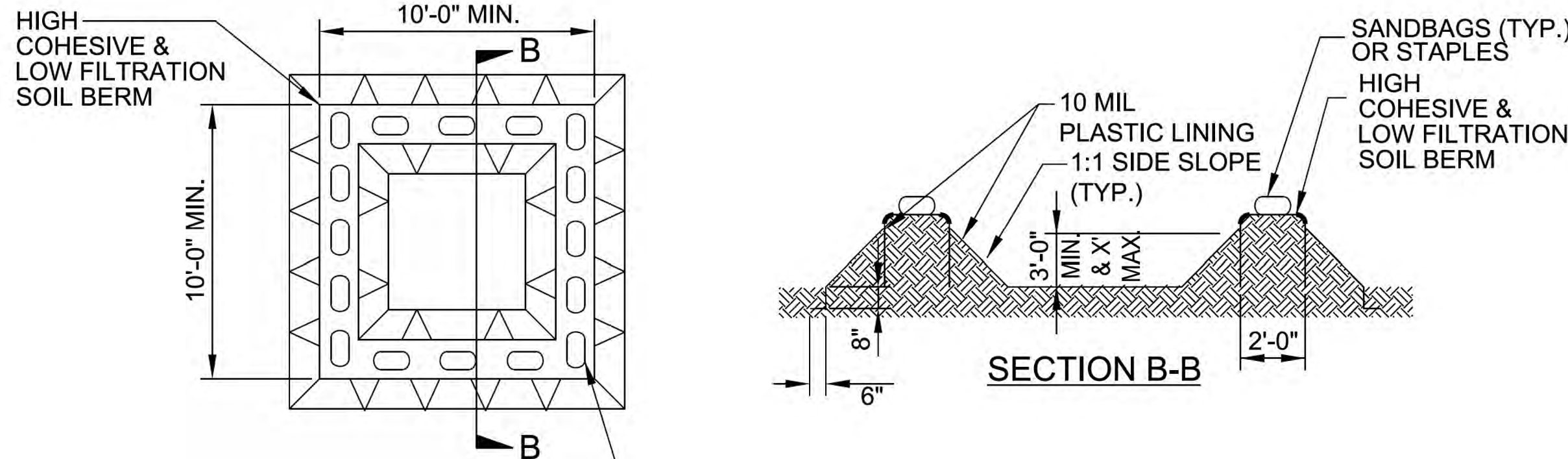


SECTION A-A

- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

PLAN

BELOW GRADE WASHOUT STRUCTURE
NOT TO SCALE




- NOTES:
1. ACTUAL LOCATION DETERMINED IN FIELD
 2. THE CONCRETE WASHOUT STRUCTURES SHALL BE MAINTAINED WHEN THE LIQUID AND/OR SOLID REACHES 75% OF THE STRUCTURES CAPACITY TO PROVIDE ADEQUATE HOLDING CAPACITY WITH A MINIMUM 12 INCHES OF FREEBOARD.
 3. CONCRETE WASHOUT STRUCTURE NEEDS TO BE CLEARY MARKED WITH SIGNAGE NOTING DEVICE.

PLAN

ABOVE GRADE WASHOUT STRUCTURE
NOT TO SCALE

DIVISION OF HIGHWAYS
STATE OF NORTH CAROLINA

PROJECT REFERENCE NO.	SHEET NO.
B-6020	EC-3
<div><div></div><div><div>M A Engineering Consultants, Inc.</div><div>598 East Chatham Street Suite 137 Cary, NC 27511 Phone: 919.297.0220 Fax: 919.297.0221</div></div></div> <div><div>NC License: F-0160</div><div>27511</div></div>	

SOIL STABILIZATION SUMMARY SHEET

MATTING FOR EROSION CONTROL

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

PERMENANT SOIL REINFORCEMENT MAT

CONST SHEET NO.	LINE	FROM STATION	TO STATION	SIDE	ESTIMATE (SY)

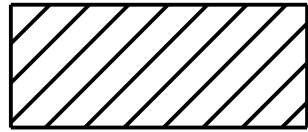
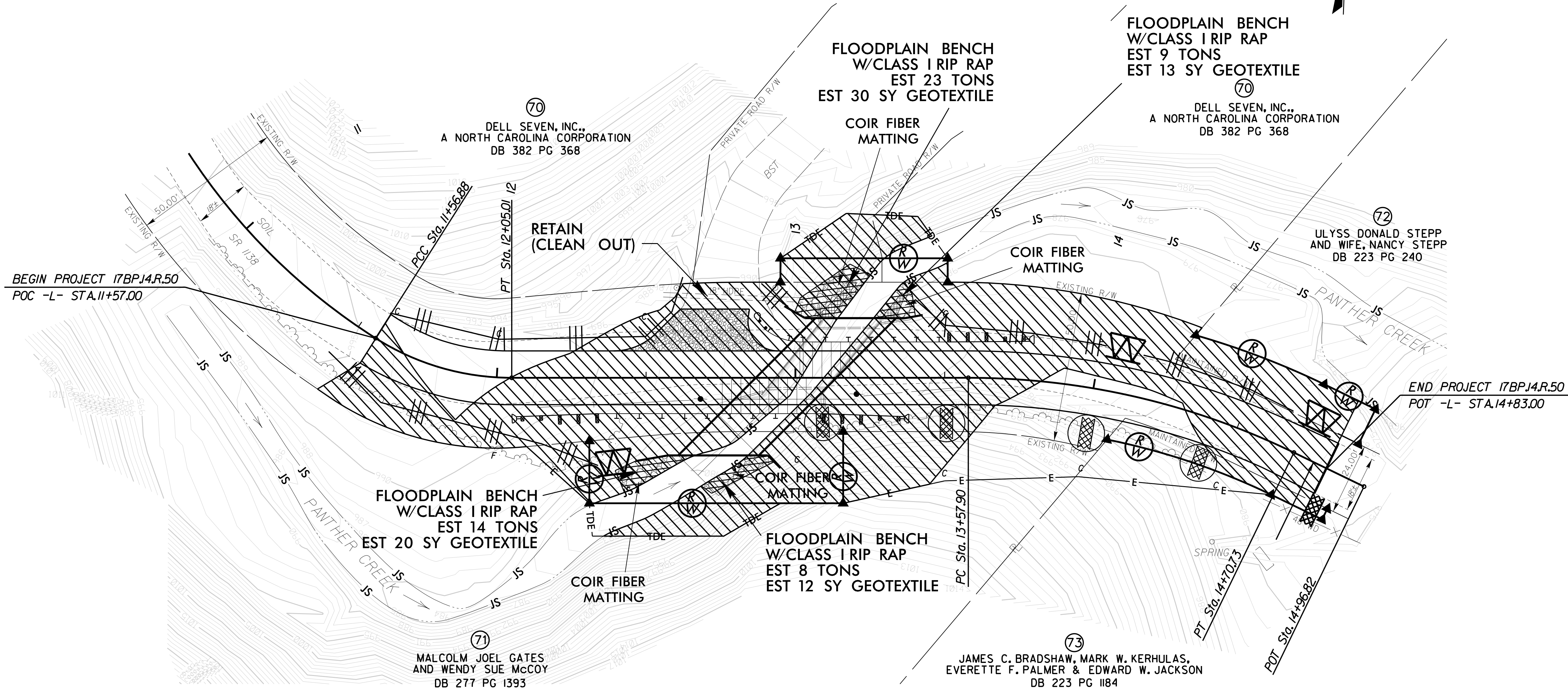
SOIL STABILIZATION TIME FRAMES

SITE DESCRIPTION	STABILIZATION TIME	TIMEFRAME EXCEPTIONS
PERIMETER DIKES, SWALES, DITCHES AND SLOPES	7 DAYS	NONE
HIGH QUALITY WATER (HQW) ZONES	7 DAYS	NONE
SLOPES STEEPER THAN 3:1	7 DAYS	IF SLOPES ARE 10’ OR LESS IN LENGTH AND ARE NOT STEEPER THAN 2:1, 14 DAYS ARE ALLOWED.
SLOPES 3:1 OR FLATTER	14 DAYS	7 DAYS FOR SLOPES GREATER THAN 50’ IN LENGTH.
ALL OTHER AREAS WITH SLOPES FLATTER THAN 4:1	14 DAYS	NONE, EXCEPT FOR PERIMETERS AND HQW ZONES.

8/17/99

3/19/2019
B:\H2019\Drawings\EC\B740144_EC_PSH4.dgn
6:05:33 PM

PROJECT REFERENCE NO.	SHEET NO.
B-6020	EC-4
POLK COUNTY	CULVERT #740144
<div><div></div><div>M A Engineering Consultants, Inc.</div><div>598 East Chatham Street Suite 137 Cary, NC 27511 Phone: 919.297.0220 Fax: 919.297.0221</div></div> <div><div>NC License: F-0160</div><div>27511</div><div>27511</div></div>	



ENVIRONMENTALLY SENSITIVE AREA
SEE PROJECT SPECIAL PROVISIONS

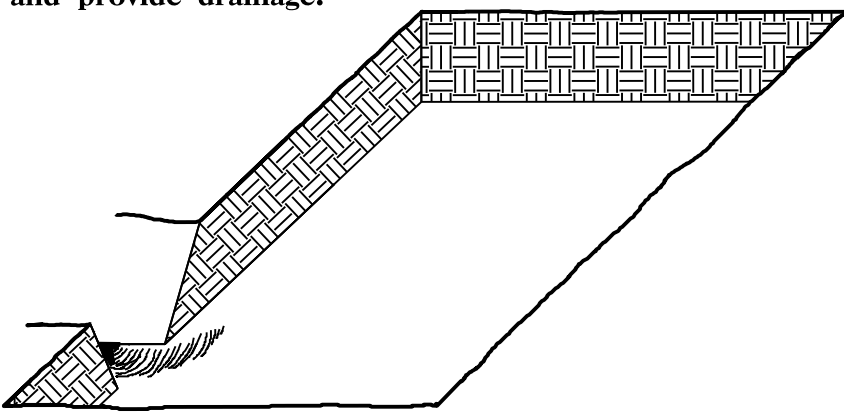
THIS PROJECT CONTAINS
EROSION CONTROL PLANS
FOR CLEARING AND
GRUBBING PHASE OF
CONSTRUCTION.

FOR CULVERT
SEE SHEETS C-1 THRU C-5

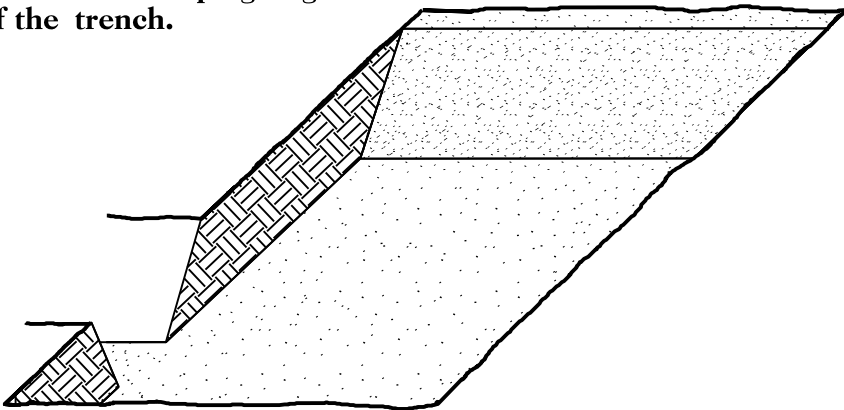
PLANTING DETAILS
SEEDLING / LINER BAREROOT PLANTING DETAIL

HEALING IN

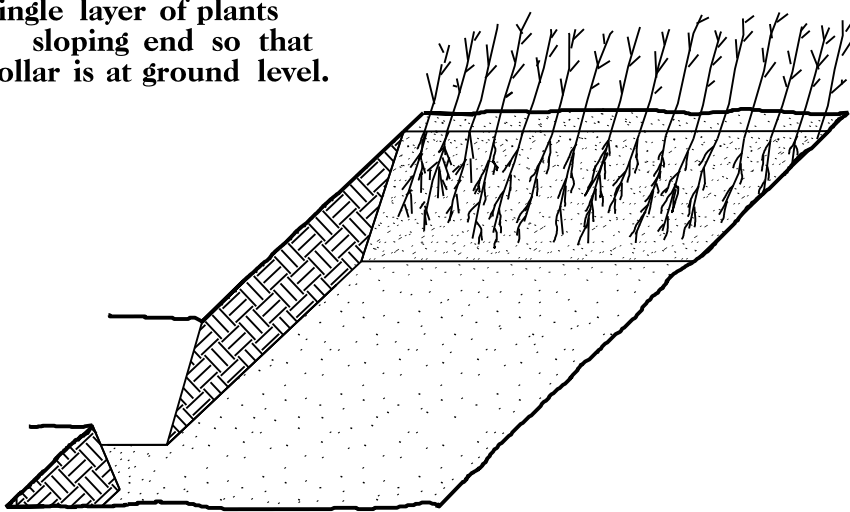
1. Locate a healing-in site in a shady, well protected area.
2. Excavate a flat bottom trench 12 inches deep and provide drainage.



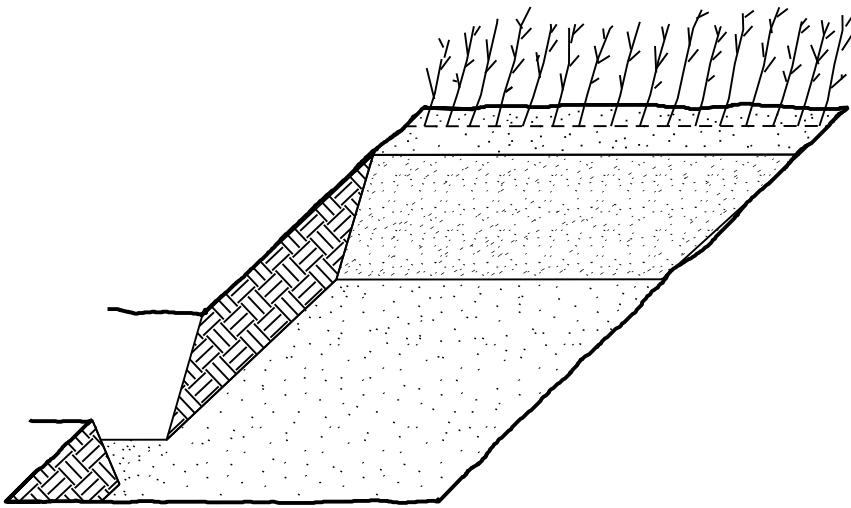
3. Backfill the trench with 2 inches well rotted sawdust. Place a 2 inch layer of well rotted sawdust at a sloping angle at one end of the trench.



4. Place a single layer of plants against the sloping end so that the root collar is at ground level.

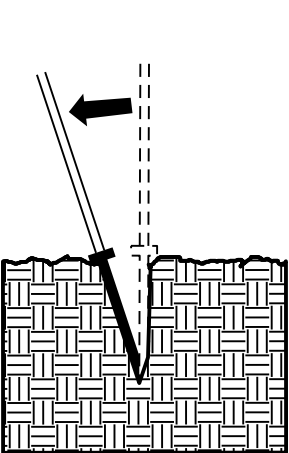


5. Place a 2 inch layer of well rotted sawdust over the roots maintaining a sloping angle.

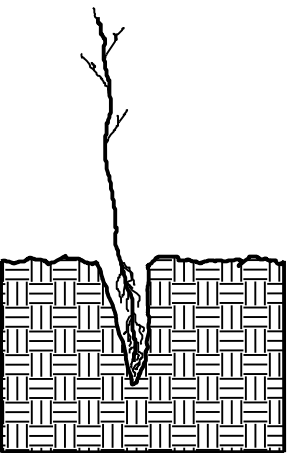


6. Repeat layers of plants and sawdust as necessary and water thoroughly.

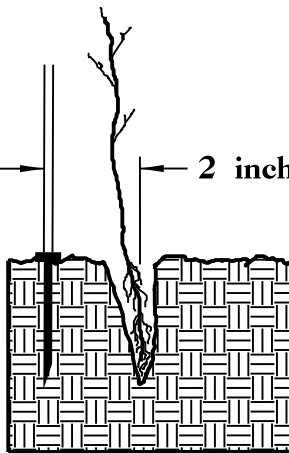
DIBBLE PLANTING METHOD
USING THE KBC PLANTING BAR



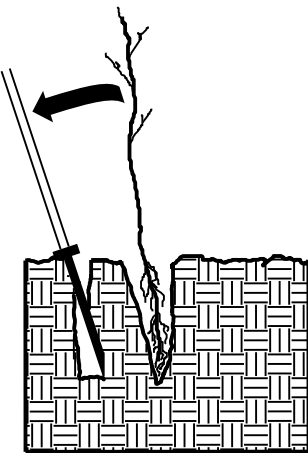
1. Insert planting bar as shown and pull handle toward planter.



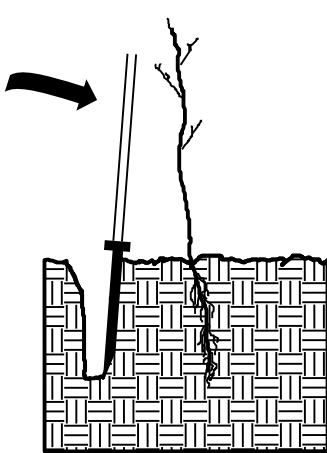
2. Remove planting bar and place seedling at correct depth.



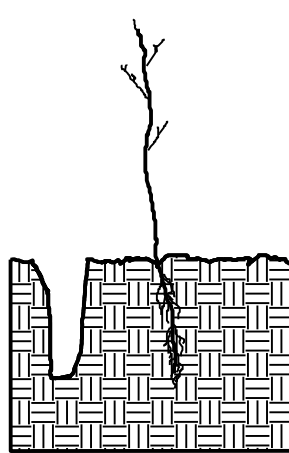
3. Insert planting bar 2 inches toward planter from seedling.



4. Pull handle of bar toward planter, firming soil at bottom.



5. Push handle forward firming soil at top.



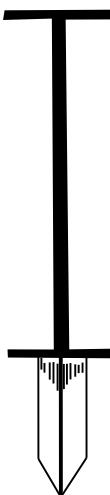
6. Leave compaction hole open. Water thoroughly.

PLANTING NOTES:

PLANTING BAG
During planting, seedlings shall be kept in a moist canvas bag or similar container to prevent the root systems from drying.



KBC PLANTING BAR
Planting bar shall have a blade with a triangular cross section, and shall be 12 inches long, 4 inches wide and 1 inch thick at center.



ROOT PRUNING
All seedlings shall be root pruned, if necessary, so that no roots extend more than 10 inches below the root collar.

REFORESTATION

- TREE REFORESTATION SHALL BE PLANTED 6 FT. TO 10 FT. ON CENTER, RANDOM SPACING, AVERAGING 8 FT. ON CENTER, APPROXIMATELY 680 PLANTS PER ACRE.

REFORESTATION

MIXTURE, TYPE, SIZE, AND FURNISH SHALL CONFORM TO THE FOLLOWING:

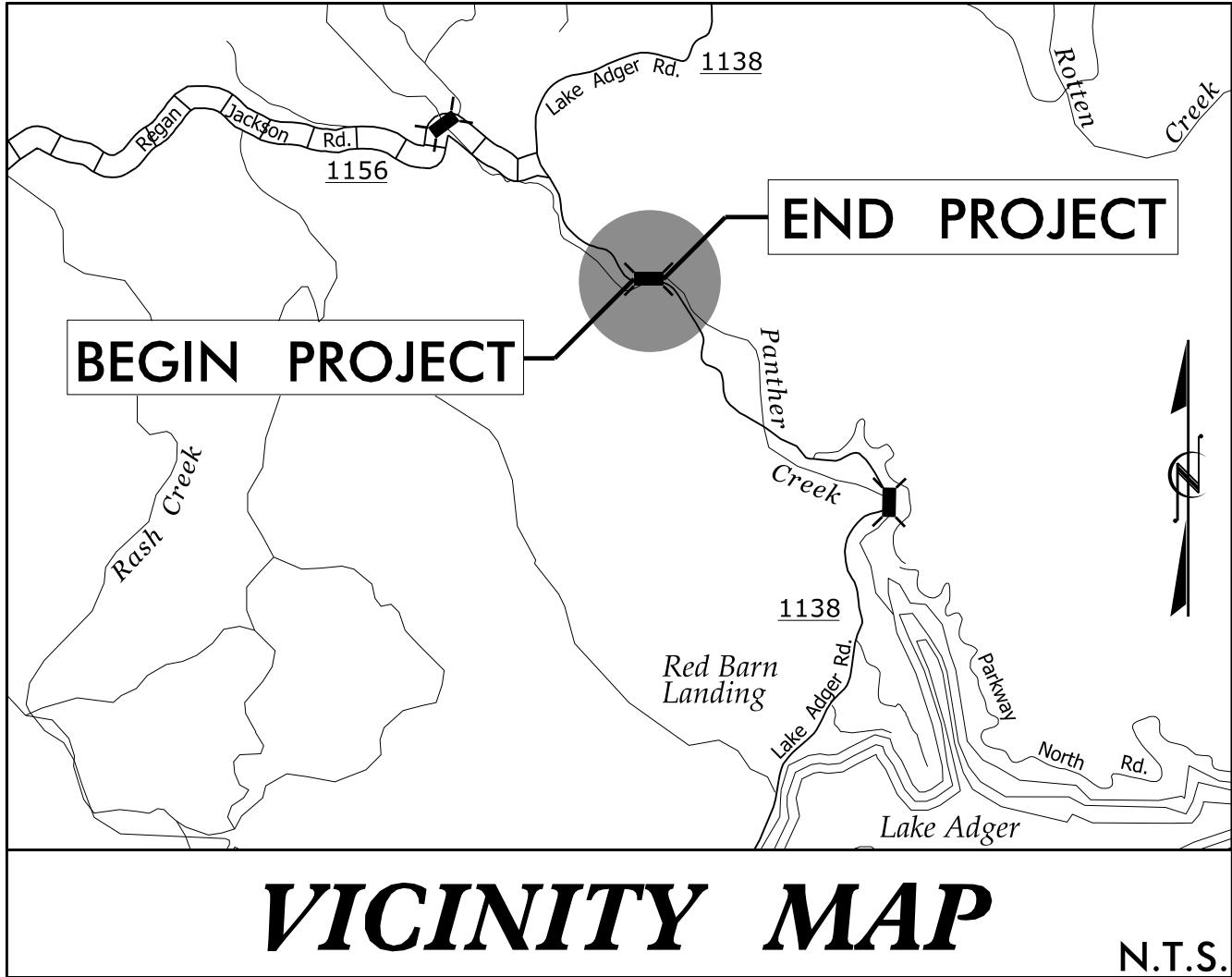
25% LIRIODENDRON TULIPIFERA	TULIP POPLAR	12 in – 18 in BR
25% PLATANUS OCCIDENTALIS	SYCAMORE	12 in – 18 in BR
25% FRAXINUS PENNSYLVANICA	GREEN ASH	12 in – 18 in BR
25% BETULA NIGRA	RIVER BIRCH	12 in – 18 in BR

REFORESTATION DETAIL SHEET

N.C.D.O.T.- ROADSIDE ENVIRONMENTAL UNIT

09/08/99

PROJECT: B-6020



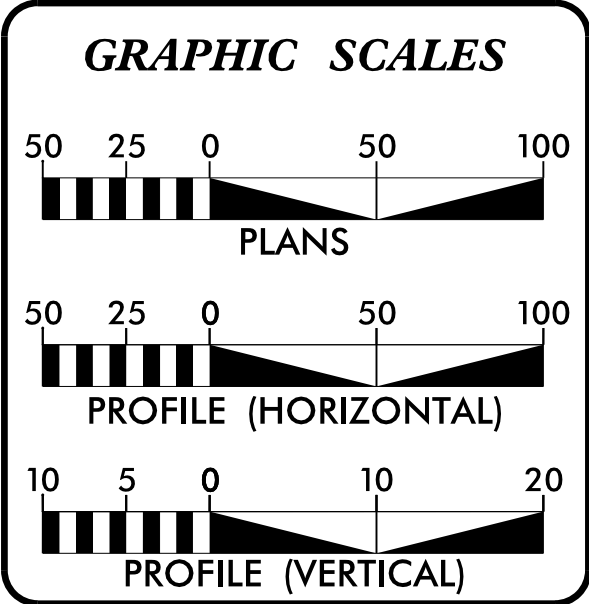
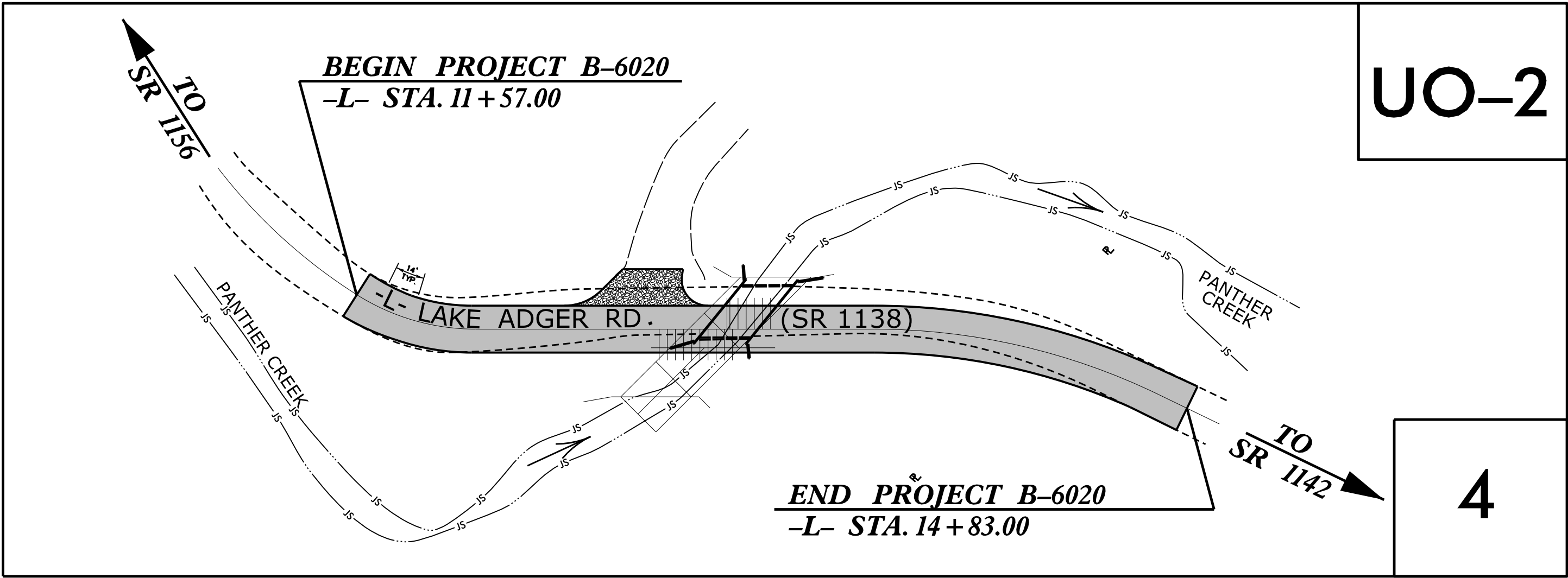
STATE OF NORTH CAROLINA
DIVISION OF HIGHWAYS

UTILITIES BY OTHERS PLANS
POLK COUNTY

LOCATION: BRIDGE NO. 740144 OVER PANTHER CREEK
ON SR 1138 (LAKE ADGER ROAD)

TYPE OF WORK: UTILITY BY OTHERS RELOCATION

T.I.P. NO.	SHEET NO.
B-6020	UO-1



INDEX OF SHEETS	
<u>SHEET NO.</u>	<u>DESCRIPTION</u>
UO-1	TITLE SHEET
UO-2	PLAN SHEET

UTILITY OWNERS ON PROJECT
(1) PHONE - AT&T

UTILITY DESIGN BY:

M A Engineering Consultants, Inc.

598 East Chatham Street Suite 137 Cary, NC 27511
Phone: 919.297.0220 Fax: 919.297.0221

NC License: F-0160

NCDOT PROJECT ENGINEER:

ADAM DOCKERY

PREPARED FOR:

NORTH CAROLINA DEPARTMENT OF TRANSPORTATION

DIVISION BRIDGE PROGRAM

5/14/99

3/19/2019
R:\Utilities\B740144_UT_U0-2.psh.dgn

PROJECT REFERENCE NO.	SHEET NO.
B-6020	U0-2

UTILITIES BY OTHERS

NOTE:
ALL PROPOSED UTILITY WORK
SHOWN ON THIS SHEET WILL
BE DONE BY OTHERS

